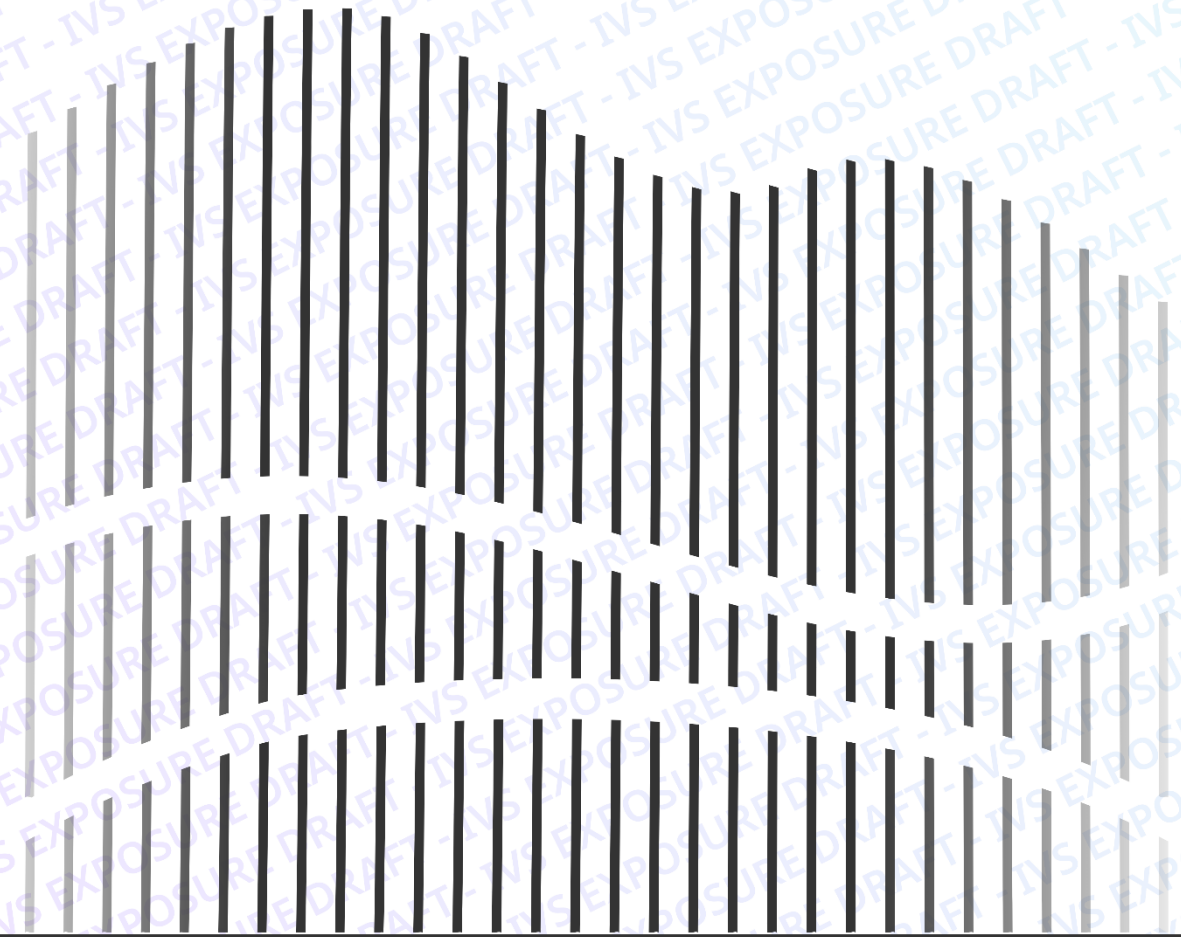
IVSC

International Valuation Standards

Effective 31 January 2028



Exposure Draft

IVS EXPOSURE DRAFT - IVS EXPOSURE DRAFT

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Foreword

The International Valuation Standards Council (IVSC) is an independent, not-for-profit organisation committed to advancing quality in the *valuation* profession. Our primary objective is to build confidence and public trust in *valuation* by producing transparent and consistent standards and securing their universal adoption and implementation for the *valuation* of *assets* across the world. International Valuation Standards (IVS) are a fundamental part of the financial system.

Valuations are widely used and relied upon in financial markets and other settings, whether for inclusion in financial statements, for regulatory compliance or to support secured lending and transactional activity.

The purpose of IVS is to promote and maintain a high level of public trust in *valuation* practice. As such, they establish appropriate global requirements for *valuations* that apply both to the parties involved in the process and to those who oversee this process.

IVS are international principle-based *valuation* standards. They outline a process that can be used in conjunction with other standards, laws, and regulations requiring a value.

IVS describe the *valuation* process, which may involve multiple parties (including *specialists* and *service organisations*). The *valuer* is ultimately responsible for the assertion of compliance with IVS.

IVS are drafted on the basis that *valuers* who use the standards are competent and have the requisite knowledge, skills, experience, training, and education to perform *valuations*. For the purposes of IVS, a *valuer* is defined as an individual, group of individuals or individual within an entity, regardless of whether employed (internal) or engaged (contracted/external), possessing the necessary qualifications, ability and experience to execute a *valuation* in an objective, unbiased, ethical and competent manner. In some *jurisdictions*, licensing is required before one can act as a *valuer* (see IVSC *Code of Ethical Principles for Valuers*).

The use of IVS can either be mandated or voluntarily adopted by:

- a body having legal *jurisdiction* over the purpose for which the *valuation* is required, or
- a *valuation* professional organisation requiring their use by members for specific purposes, or
- agreement between the party requiring the *valuation* and a *valuer*.

Glossary

This glossary forms an integral part of the standards and defines certain terms used specifically in the context of IVS. All glossary definitions are italicised and should be used in context as described in the standard.

10. Defined Terms

10.01 Asset or Assets

The right to an economic benefit.

10.02 Basis (bases) of Value

The fundamental premises on which the reported *values* are or will be based (see IVS 102 *Bases of Value*).

10.03 Business

An organisation or integrated collection of activities, *assets* and/or *liabilities* engaged in commercial, industrial, service or investment activity. (see IVS 200 *Business and Business Interests*)

10.04 Client(s)

The person who engages the *valuer* for a given *valuation*. "*Clients*" may be internal (i.e., *valuations* performed for an employer) or external (i.e., when the *valuer* is engaged by a third-party).

10.05 Cost(s) (noun)

The consideration or expenditure required to acquire or create an *asset*.

10.06 Discount Rate(s)

A rate of return used to convert a monetary sum, payable or receivable in the future, into a present value.

10.07 Environmental, Social and Governance (ESG)

The criteria that together establish the framework for assessing the resiliency of operations of a company, *asset* or *liability*. *ESG* comprises three pillars: Environmental, Social and Governance, all of which may collectively impact performance, the wider markets and society. *(*see IVS 104 *Data and Inputs* Appendix*)*

10.08 Equitable Value

This is the estimated *price* for the transfer of an *asset* or *liability* between identified knowledgeable and willing parties that reflects the respective interests of those parties. *(*see IVS 102 *Bases of Value Appendix A50)*

10.09 Financial Instrument

A contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity. *(*see IVS 500 *Financial Instruments)*

10.10 Input

Data, assumptions, and adjustments determined to be relevant and assessed or selected by the *valuer* to be used in the *valuation*, based upon *professional judgement*.

10.11 Intangible Asset

An identifiable non-monetary *asset* with no physical substance. *(see IVS 210 Intangible Assets)*

10.12 Intended Use

The reason(s) for which a *value* is developed as described in the scope of work. This is also known as intended purpose.

10.13 Intended User

Any party identified by the *client* and *valuer* in the scope of work as users of the *valuation*.

10.14 Investment Value

The value of an *asset* to the owner or a prospective owner given individual investment or operational objectives. This may also be known as "worth". *(see IVS 102 Bases of Value* Appendix A40*)*

10.15 Jurisdiction

The legal and regulatory environment in which a *valuation* is performed.

10.16 Liability

The present obligation to transfer or otherwise provide economic benefits to others.

10.17 Liquidation Value

The gross amount that would be realised when an *asset* or group of *assets* are sold from a liquidation sale, with the seller being compelled to sell as of a specific date, as determined under either an orderly transaction with a typical marketing period, or a forced transaction with a shortened marketing period. (see IVS 102 *Bases of Value*, Appendix A60)

10.18 Market Value

The estimated amount for which an *asset* or *liability should* exchange on the *valuation date* between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion. *(*see IVS 102 *Bases of Value Appendix A60)*

10.19 Must

Actions or procedures that are mandatory.

10.20 Non-Financial Liability

A *liability* requiring a non-cash performance obligation to provide goods or services. (see IVS 220 *Non-Financial Liabilities*)

10.21 Observable Data

Information that is readily available to market participants about actual events or transactions that are used in determining the *value* for the *asset* and/or *liability*.

10.22 Price (noun)

The monetary or other consideration asked, offered or paid for an *asset* or to transfer a *liability*. *Price* and *value* may be different.

10.23 Professional Judgement

The use of accumulated knowledge, experience, and critical reasoning of the *valuer*, to make an informed decision.

10.24 Professional Scepticism

An attitude of the *valuer* that includes a questioning mind and critical analysis throughout the *valuation*.

10.25 Quality Control

The process and procedures used to mitigate *valuation risk* and to verify the *valuation* is in accordance with IVS and appropriate for its *intended use*.

10.26 Service Organisation

An entity (or segment of an entity) that provides information, reports or opinions including but not limited to providing market data, credit ratings or other services to support the *valuation*.

10.27 Should

The *valuer* is expected to comply with requirements of this type unless the *valuer* can demonstrate that alternative actions are sufficient.

10.28 Significant

Any aspect of a *valuation* which, in the *professional judgement* of the *valuer*, substantially impacts the resultant *value*.

10.29 Specialist

An individual or group of individuals possessing the technical skills, experience and knowledge required to perform or assist in the *valuation* or the review and challenge process. A *specialist* can be internally employed or engaged externally.

10.30 Sustainability

A concept that encompasses the extent to which *ESG*, resilience and other *significant* considerations may impact the ability of a company, *asset*, *liability* or investment to generate, maintain, or enhance economic value.

10.31 Synergistic Value

The result of a combination of two or more *assets* or interests where the combined *value* is greater than the sum of the separate *values*. If the synergies are only available to one specific buyer, then *synergistic value* will differ from *market value*, as the *synergistic value* will reflect particular attributes of an *asset* that are only of *value* to a specific purchaser. The added *value* above the aggregate of the respective interests is often referred to as marriage value. *(see IVS 102 Bases of Value Appendix A60)*

10.32 Tangible Asset

A physical measurable *asset* such as, but not limited to, property, plant, equipment and infrastructure. *(see IVS 300* and *IVS 400)*

10.33 Valuation

The act or process of forming a conclusion on a *value* as of a *valuation date* prepared in compliance with IVS.

10.34 Valuation Approach

A generic term for the use of the cost, income or market approach.

10.35 Valuation Date

The point in time to which the *valuation* applies.

10.36 Valuation Method

Within a *valuation approach*, a specific technique to conclude a *value*.

10.37 Valuation Model

A quantitative implementation of a *valuation method* in whole or in part that converts *inputs* into outputs used in the development of a *value*.

10.38 Valuation Process Review

An analysis undertaken by another *valuer* after the issuance of a valuation report to assess compliance with IVS or a component of IVS applicable as at a *valuation date*. This does not include an opinion on the *value*.

10.39 Valuation Review

An analysis undertaken after the issuance of a valuation report that is either a *valuation process review* or a *value review* or both.

10.40 Valuation Risk

The possibility of errors, omissions, biases, or inadequate documentation arising within the *valuation* process (e.g., in *valuation method*, *valuation model*, data, assumptions, *professional judgment* and *quality controls*) that could lead to a *value* that is not appropriate, credible or supportable for its *intended use*.

10.41 Value (noun)

The *valuer's* quantitative conclusion on the results of a *valuation* process that is fully compliant with the requirements of IVS as of a *valuation date*.

10.42 Valuer

An individual, group of individuals or individual within an entity, regardless of whether employed (internal) or engaged (contracted/external), possessing the necessary qualifications, ability and experience to execute a *valuation* in an objective, unbiased, ethical and competent manner. In some *jurisdictions*, licensing is required before one can act as a *valuer*.

10.43 Value Review

An analysis by the *valuer* applying IVS to assess and provide an opinion on the *value* of another *valuer's* work. This does not include an opinion on the *valuation* process.

10.44 Weight

The amount of reliance placed on a particular indication of *value* in reaching a conclusion of *value*.

General Standards

IVS 100 Valuation Framework

General Standards apply to all *assets* and *liabilities* and are the starting point for any *valuation*. Asset Standards provide requirements in addition to the General Standards for specific types of *assets* and *liabilities*.

Compliance with IVS includes adherence to General Standards, applicable Asset Standards, and the Appendices.

In performing *valuations*, the *valuer must* comply with the Valuer Principles.

10. Valuer Principles

10.01 Ethics

The *valuer must* follow the ethical principles of integrity, objectivity, impartiality, confidentiality, competence, and professionalism to provide a non-biased *valuation* and to promote and preserve the public trust.

10.02 Competency

The *valuer must* have the technical skills, knowledge and experience required to appropriately complete a *valuation*.

10.03 Compliance

The *valuer must* disclose or report that IVS were used for the *valuation* and that they complied with those standards in performing the *valuation*.

10.04 Professional Scepticism

The *valuer must* apply an appropriate level of *professional scepticism* at every stage of the *valuation*.

20. Structure of International Valuation Standards (IVS)

20.01 International Valuation Standards comprise General Standards that are applicable across all *valuations*, and Asset Standards that relate to specific *valuation* disciplines. Appendices, which are part of International Valuation Standards, provide additional information for certain concepts articulated. In order to provide an IVS-compliant *valuation*, all IVS General Standards, Asset Standards and Appendices *must* be followed.

20.02 **General Standards**

20.03 General Standards apply to all *valuations*. The General Standards are structured as follows.

IVS 100 *Valuation Framework*
IVS 101 *Scope of Work*
IVS 102 *Bases of Value*
Appendix:
IVS-Defined Bases of Value
Other Bases of Value
Premise of Value
IVS 103 *Valuation Approaches*
Appendix: Valuation Methods
IVS 104 *Data and Inputs*
Appendix: Environmental, Social and Governance Considerations
IVS 105 *Valuation Models*
IVS 106 *Documentation and Reporting*
IVS 107 Quality Control

20.04 **Asset Standards**

20.05 In addition to the requirements of the General Standards, Asset Standards apply to specific types of assets and liabilities as follows:

IVS 200 *Businesses and Business Interests*
IVS 210 *Intangible Assets*
IVS 220 *Non-Financial Liabilities*
IVS 230 *Inventory*
IVS 300 *Plant, Equipment and Infrastructure*
IVS 400 *Real Property Interests*
IVS 500 *Financial Instruments*

30. Use of a Specialist or Service Organisation

30.01 If the *valuer* does not possess the necessary technical skills, experience, data or knowledge to perform all aspects of a *valuation*, it is acceptable for the *valuer* to seek assistance from a *specialist* or *service organisation*, providing this is agreed and disclosed.

30.02 Prior to using a *specialist* or *service organisation* the *valuer must* assess and document the knowledge, skill and ability of the *specialist* or *service organisation*. Relevant factors include but are not limited to:

(a) experience in the type of work performed,

(b) professional certification, licence, or professional accreditation of the *specialist* or service organisation in the relevant field,

(c) reputation and standing of the *specialist* or *service organisation* in the applicable field.

30.03 When a *specialist* or *service organisation* is used, the *valuer must* obtain an understanding of their process and findings to establish a reasonable basis to rely on their work based on the *valuer's professional judgment*.

40. Compliance

40.01 In order to be IVS compliant, the *valuation must* meet the requirements of the General Standards, the Appendices, as well as applicable Asset Standards

40.02 IVS consist of mandatory requirements that *must* be followed in order to state that a *valuation* was performed in compliance with IVS.

40.03 Certain aspects of IVS do not direct or mandate any specific action but provide fundamental principles and concepts that *should* be considered in undertaking a *valuation*.

40.04 If legal, statutory, regulatory and/or other authoritative requirements appropriate for the purpose and *jurisdiction* of the *valuation* conflict with IVS, such requirements *should* be prioritised, explained, documented, and reported in order to remain compliant with IVS.

40.05 If there are any legal, statutory, and regulatory or other authoritative requirements that *significantly* affect the nature of the procedures performed, *inputs* and assumptions used, and/or *value(s)*, the *valuer must* also disclose the specific legislative, regulatory or other authoritative requirements and the *significant* ways in which they differ from the requirements of IVS.

40.06 For example, identifying that the relevant *jurisdiction* requires the sole use of a market approach in a circumstance where IVS would indicate that the income approach *should* be considered.

40.07 Any other deviations would render the *valuation* not compliant with IVS.

40.08 For *assets* and/or *liabilities* that may fall within multiple Assets Standards, the *valuer must follow* the General Standards and explain, justify and document which of the Asset Standard(s) were used. For example, both IVS 200 *Businesses and Business Interests* and IVS 500 *Financial Instruments* apply to some *assets* and/or *liabilities*.

40.09 In certain instances, the *valuer* may be engaged to conduct a *valuation review* for compliance with IVS. In such instances, the *valuer should* comply with IVS and the applicable review framework as defined in the scope of work.

50. Effective Date

50.01 This version of International Valuation Standards is published on 31 January 2027, with an effective date of 31 January 2028 for *valuations* performed on or after this date. The IVSC permits early adoption from the date of publication.

50.02 When undertaking *valuations* or *valuation reviews* with a retrospective or historical *valuation date*, the *valuer should* document the editions of IVS that:

(a) they have relied upon, and

(b) are applicable at the *valuation date*.

IVS 101 Scope of Work

This section requires the *client* and *valuer* to agree the scope of work for a *valuation* or *valuation review* that is appropriate for the *intended use*. It provides the minimum *valuation* or *valuation review* requirements for that scope of work.

10. Introduction

10.01 A scope of work (sometimes referred to as terms or letter of engagement) describes the fundamental terms of a *valuation* or *valuation review*. These include but are not limited to the *asset(s)* and/or *liability(ies)* being valued, the *intended use* of the *valuation* and the responsibilities of parties involved in the *valuation*.

10.02 A scope of work for a *valuation review* describes the fundamental terms such as the components of the *valuation* or *value* being reviewed.

10.03 A scope of work is required for all *valuations* and *valuation reviews* whether the *values* are for internal or external use.

10.04 The *client* and the *valuer must* agree on the scope of work and that the *valuation* or *valuation review* scope is appropriate for the *intended use*.

10.05 If, in the *valuer's professional judgement*, the scope of work is overly restrictive, then this may not result in an IVS-compliant *valuation*.

20. Valuation Requirements

20.01 The scope of work *must* specify the following:

(a) *asset(s)* and/or *liability(ies)* being valued; the subject *asset(s)* and/or *liability(ies)* in the *valuation must* be clearly identified. The *client* is responsible for the accuracy and completeness of that information.

(b) *clients:* the person, persons, or entity who appoints the *valuer* for a given *valuation*. *clients* may be internal (i.e., *valuations* performed for an employer) or external (i.e., when the *valuer* is engaged by a third-party *client*).

(c) *intended use* (if any): the reason for which a *valuation* is developed,

(d) *intended user* (if any); any party identified by the *client* in the scope of work as a user of the *valuation*.

(e) the *valuer*: the *valuer* may be an individual, a group of individuals, or an individual within an entity, regardless of whether employed (internal) or engaged (contracted/external), possessing the necessary qualifications, ability and experience to execute a *valuation* in an objective, unbiased, ethical and competent manner. The *valuer must* disclose any potential conflict of interest or bias.

(f) *valuation currency*: the currency for the *valuation* and the final valuation report or conclusion *must* be established.

(g) *valuation date*: the *valuation date must* be stated. If the *valuation date* is different from the date on which the *valuation* is reported, then that date *should* also be stated.

(h) *basis/bases of value* used: As required by IVS 102 *Bases of Value*, the *valuation must* be appropriate for the *intended use*. The source of the definition of any *basis of value* used *must* be cited or the basis explained.

(i) *range:* Whether the *value* is to be expressed as a point estimate, a range, or a point estimate within a range.

(j) the nature and extent of the *valuer's* work and any limitations thereon: any limitations or restrictions on the inspection, enquiry and/or analysis in the *value must* be identified. If relevant information is not available because the conditions of the *valuation* restrict the investigation, these restrictions and any necessary assumptions or special assumptions (see IVS 102 *Bases of Value*, section 50) made resulting from the restriction *must* be identified.

(k) proposed *significant* use of artificial intelligence or other technology-based tools and resources, that employ opaque or non-transparent logic, as applicable, whether in whole or in part, in conducting the valuation and preparing the report.

(l) the nature and sources of data and *inputs*: the nature and source of *significant* data and i*nputs* upon which the *valuer* relies and *quality controls* to ensure the accuracy of the data and *inputs*.

(m) special assumptions: any agreed special assumptions that are known prior to the *valuation should* be recorded in the scope of work.

(n) *Specialist* and/or *service organisation*: the use and role of a *specialist* and/or *service organisations*.

(o) *Sustainability* considerations and *Environmental, Social and Governance* factors: any requirements in relation to the consideration of *significant sustainability* considerations and *environmental, social and governance* factors.

(p) the IVS Asset Standards to be considered within the *valuation*,

(q) the type of report or other documentation being prepared: a clear description of how the *valuation* will be reported or a sample of the deliverable that will be supplied to the *client*. This *should* include a description of the type and extent of supporting documentation that will be supplied.

(r) restrictions on use, distribution, and publication of the report: where it is necessary or desirable to restrict the use of the *valuation* or those relying on it, the *intended users* and restrictions *must* be clearly communicated.

(s) IVS compliance: a statement that the *valuation* will be prepared in compliance with IVS *must* be disclosed in the scope of work, and that the *valuer* will assess the appropriateness of all *significant inputs*.

(t) If, during the course of a *valuation*, it becomes clear to the *valuer* that the scope of work will not result in an IVS-compliant *valuation*, this *must* be communicated to the *client* in writing.

20.02 The scope of work *must* indicate any *significant* proposed use of artificial intelligence or other technology-based tools and resources that employ opaque or non-transparent logic where the decision pathways and underlying rationale cannot be readily explained or verified by the *valuer* during the *valuation*.

20.03 The scope of work *must* be established and agreed between the *client* and the *valuer* in writing prior to the completion of the *valuation* report.

20.04 Any changes to the scope of work prior to the completion of the *valuation must* be communicated and agreed upon in writing.

20.05 If, during the course of a *valuation* engagement, it becomes clear that the scope of work will not result in an IVS-compliant *value*, the *valuation* will not comply with IVS.

30. Valuation Process Review and Value Review Requirements

30.01 A *valuation review* is not a *valuation*. The scope of work *must* state whether the *valuation review* is a *valuation process review* or a *value review* or both.

(a) a *valuation process review* addresses compliance with IVS,

(b) a *value review* addresses the reasonableness of a *value*.

30.02 The scope of work of an engagement that is either a *valuation process review* or a *value review*, or both, *must* include the following, at a minimum:

(a) the type of review being conducted,

(b) the agreed scope as to whether the review is a *valuation process review*, a *value review* or both,

(c) the *asset(s)* and/or *liability(ies)* being reviewed,

(d) the identity of the *valuation* reviewer,

(e) the identity of the *client*,

(f) the *intended use*,

(g) the *intended users*, if applicable,

(h) *significant* or special assumptions and/or limiting conditions pertaining to the *valuation* to be reviewed,

(i) the use and role of a *specialist* or service provider, if used, as part of the *valuation review*,

(j) procedures to be undertaken, and the documentation to be reviewed.

IVS 102 Bases of Value

This section requires the *valuer* to agree the appropriate *basis* (or *bases*) of *value* for the scope of work and the *intended use* and follow all applicable requirements associated with that *basis* (or *bases*) *of value*, whether those requirements are included as part of this standard (for IVS-defined *bases of value*) or not (for non-IVS-defined *bases of value*).

10. Introduction

10.01 *Bases of value* describes the fundamental premises or requirements upon which the reported *values* will be based. It is critical that the *basis (or bases) of value* be appropriate for the terms and *intended use* of the *valuation*, since a *basis of value* may influence or dictate the *valuer's* selection of methods, *inputs* and assumptions, and the ultimate *value*.

10.02 There are different *bases of value* used in *valuations*. The *valuer* may be required to use *bases of value* that are defined by statute, regulation, private contract or in another framework.

10.03 A premise of value or assumed use describes the circumstances of how an *asset* and/or *liability* is used. Different *bases of value* may require a specific premise of value or allow the consideration of multiple premises of value.

10.04 The most common premises of value used in IVS are (see IVS 102 *Bases of Value*, Appendix A90-A120);

(a) highest and best use,

(b) current use/existing use,

(c) orderly liquidation, and

(d) forced sale.

10.05 The *valuation date* will influence what information and data the *valuer* considers in a *valuation*. The *valuer should* be aware that most *bases of value* prohibit the consideration of information or market sentiment that would not be known or knowable with reasonable due diligence on the *valuation date* by participants.

10.06 Most *bases of value* reflect assumptions that may include but not be limited to one or more of the following characteristics:

(a) hypothetical buyer or seller,

(b) known or specific parties,

(c) members of an identified/described group or potential parties,

(d) whether the parties are subject to specific conditions or motivations at the assumed date (e.g., duress), and/or

(e) an assumed level of knowledge.

20. Bases of Value

20.01 IVS-defined *bases of value* are listed at para 20.02. Other non-IVS-defined *bases of value* are prescribed by individual jurisdictional law, local regulators, applicable standards, or those recognised and adopted by international agreement.

20.02 IVS-defined *bases of value* are (see IVS 102 *Bases of Value,* Appendix A10-A60);

(a) *Market value* A10,

(b) *Market rent* A20,

(c) *Equitable value* A30,

(d) *Investment value/worth* A40,

(e) *Synergistic value*, A50*,* and

(f) *Liquidation value* A60.

20.03 Other *bases of value* may be required for financial reporting, tax reporting, or in other legal or regulatory contexts. Depending on the promulgator of the *basis of value*, the same words may be defined differently or require different *valuation approaches*. Therefore, care *should* be taken to identify, articulate and apply the appropriate *basis of value* for a given *valuation*. (A non-exhaustive illustrative list of other *bases of value* is included at IVS 102 *Bases of Value*, Appendix A70-A80).

20.04 In accordance with IVS 101 *Scope of Work*, the *basis of value must* be appropriate for the *intended use* and the source of the definition of any *basis of value* used *must* be cited or the basis explained.

20.05 The *valuer* is responsible for understanding legal, statutory, regulatory and/or other authoritative requirements related to all *basis(es) of value* used.

20.06 The *bases of value* illustrated in IVS 102 *Bases of Value*, Appendix A70-A80, are defined by organisations other than the IVSC and the *valuer* is responsible for ensuring they are using the applicable/relevant definition.

30. Entity-Specific Factors

30.01 Most *bases of value* generally exclude from their permissible *inputs* factors that are specific to a particular buyer or seller and are not available to participants generally.

30.02 Entity-specific factors that may not be available to participants include but are not limited to:

(a) additional *value* or reduction in *value* derived from the creation of a portfolio of similar asset*(s),*

(b) unique synergies between the *asset(s)* and other *asset(s)* owned by the entity,

(c) legal rights or restrictions applicable only to the entity,

(d) tax benefits or tax burdens unique to the entity, and

(e) an ability to exploit an *asset* that is unique to that entity.

30.03 Whether such factors are specific to the entity or would be available to other participants in the market generally is determined on a case-by-case basis. For example, an *asset* may not normally be transacted as a stand-alone item but as part of a group of *assets*. In that case, any synergies with those related *assets* would transfer to participants along with the transfer of the group and therefore are not entity specific.

30.04 If the objective of the *basis of value* used in a *valuation* is to determine the *value* to a specific owner (such as *investment value*/worth (see IVS 102 *Bases of Value*, Appendix A40) then entity-specific factors *should* be reflected in the *valuation* of the *asset(s)* and/or *liability(ies)*. Situations in which the *value* to a specific owner may be required include but are not limited to the following examples:

(a) supporting investment decisions, and

(b) reviewing the performance of an *asset*.

40. Synergies

40.01 Synergies refer to the benefits associated with combining *assets* and/or *liabilities*. When synergies are present, the *value* of a group of *assets* and/or *liabilities* is greater than the sum of the values of the individual *assets* and *liabilities* on a stand-alone basis. Synergies typically relate to a reduction in *costs*, and/or increase in revenue, and/or a reduction in risk.

40.02 Whether synergies *should* be considered in a *valuation* depends on the *basis(es) of value*. For most *bases of value*, only those synergies available to other participants generally will be considered (see section 30 above).

40.03 An assessment of whether synergies are available to other participants may be based on the amount of the synergies rather than a specific way to achieve that synergy.

50. Assumptions

50.01 In addition to stating the *basis of value*, it is often necessary to make one or multiple assumptions to clarify either:

(a) the state of the *asset* in the hypothetical exchange, or

(b) the circumstances under which the *asset* and/or *liability* is assumed to be exchanged.

50.02 Such assumptions can have a *significant* impact on *value*.

50.03 Assumptions related to facts that are consistent with or could be consistent with those existing at the *valuation date* may be the result of a limitation on the extent of the investigations or enquiries undertaken by the *valuer*. Examples of such assumptions include but are not limited to:

(a) an assumption that an *asset* and/or *liability* employed in a *business* is transferred as a complete operational entity,

(b) an assumption that an *asset* and/or *liability* employed in a *business* is transferred without the *business*, either individually or as a group,

(c) an assumption that an individually valued *asset* and/or *liability* is transferred together with other complementary *asset(s)* and/or *liability(ies)*, and

(d) an assumption that a holding of shares is transferred either as a block or individually.

50.04 All *significant* assumptions *must* be reasonable under the circumstances, be supported by evidence and be relevant, having regard to the *intended use* for which the *valuation* is required to provide an IVS-compliant *valuation*.

60. Special Assumptions

60.01 When assumed facts differ from those existing at the *valuation date*, they are referred to as a "special assumptions." Special assumptions are often used to illustrate the effect of possible changes on the *value* of an *asset.* They are designated as "special" to highlight to the *intended user* that the *valuation* is contingent upon a change in the current circumstances or that it reflects a view that would not be

taken by participants generally on the *valuation date*. Examples of such assumptions include but are not limited to:

(a) an assumption that a property is freehold with vacant possession,

(b) an assumption that a proposed building had actually been completed on the *valuation date*,

(c) an assumption that a specific contract was in existence on the *valuation date* which had not actually been completed, and

(d) an assumption that a *financial instrument* is valued using a yield curve that is different from that which would be used by a participant.

60.02 All *significant* special assumptions *must* be reasonable under the circumstances, be supported by evidence and be relevant having regard to the *intended use* of the *valuation* to provide an IVS-compliant *valuation*.

70. Transaction Costs

70.01 Most *bases of value* represent the estimated *price* of an *asset* without adjustment for the seller's *costs* of sale or the buyer's *costs* of purchase and any taxes payable by either party as a direct result of the transaction.

IVS 102 Bases of Value: Appendix

IVS-Defined Bases of Value

The *bases of value* appear in the Appendix. The Appendix *must* be followed when using the stated *basis of value* as applicable.

A10. Market Value

A10.01 *Market value* is the estimated amount for which an *asset* and/or *liability should* exchange on the *valuation date* between a willing buyer and a willing seller in an arm's-length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion.

A10.02 The definition of *market value must* be applied in accordance with the following conceptual framework:

(a) "The estimated amount" refers to a *price* expressed in terms of money payable for the *asset* in an arm's-length market transaction. *Market value* is the most probable *price* reasonably obtainable in the market on the *valuation date* in keeping with the *market value* definition. It is the best *price* reasonably obtainable by the seller and the most advantageous *price* reasonably obtainable by the buyer. This estimate specifically excludes an estimated *price* inflated or deflated by special terms or circumstances such as atypical financing, sale and leaseback arrangements, special considerations or concessions granted by anyone associated with the sale, or any element of *value* available only to a specific owner or purchaser.

(b) An *asset* or *liability should* exchange "refers to the fact that the *value* of an *asset* or *liability* is an estimated amount rather than a pre- determined amount or actual sale *price*. It is the *price* in a transaction that meets all the elements of the *market value* definition at the *valuation date*.

(c) "On the *valuation date*" requires that the *value* is time specific as of a given date. Because markets and market conditions may change, the estimated value may be incorrect or inappropriate at another time. The *valuation* amount will reflect the market state and circumstances as at the *valuation date*, not those at any other date.

(d) "Between a willing buyer" refers to one who is motivated, but not compelled, to buy. This buyer is neither over-eager nor determined to buy at any *price*. This buyer is also one who purchases in accordance with the realities of the current market and with current market expectations, rather than in relation to an imaginary or hypothetical market that cannot be demonstrated or anticipated to exist. The assumed buyer would not pay a higher *price* than the market requires. The present owner is included among those who constitute "the market".

(e) "And a willing seller" is neither an over-eager nor a forced seller prepared to sell at any *price,* nor one prepared to hold out for a *price* not considered reasonable in the current market. The willing seller is motivated to sell the *asset* at market terms for the best *price* attainable in the open market after proper marketing, whatever that *price* may be. The factual circumstances of the actual owner are not part of this consideration because the willing seller is a hypothetical owner.

(f) "In an arm's-length transaction" is one between parties who do not have a particular or special relationship, e.g., parent and subsidiary companies or landlord and tenant, that may make the *price* level uncharacteristic of the market or inflated. The *market value* transaction is presumed to be between unrelated parties, each acting independently.

(g) "After proper marketing" means that the *asset* has been exposed to the market in the most appropriate manner to affect its disposal at the best *price* reasonably obtainable in accordance with the *market value* definition. The method of sale is deemed to be that most appropriate to obtain the best *price* in the market to which the seller has access. The length of exposure time is not a fixed period but will vary according to the type of *asset* and market conditions. The only criterion is that there *must* have been sufficient time to allow the *asset* to be brought to the attention of an adequate number of market participants. The exposure period occurs prior to the *valuation date*.

(h) "Where the parties had each acted knowledgeably, prudently" presumes that both the willing buyer and the willing seller are reasonably informed about the nature and characteristics of the *asset*, its actual and potential uses, and the state of the market as of the *valuation date*. Each is further presumed to use that knowledge prudently to seek the *price* that is most favourable for their respective positions in the transaction. Prudence is

assessed by referring to the state of the market at the *valuation date,* not with the benefit of hindsight at some later date. For example, it is not necessarily imprudent for a seller to sell *assets* in a market with falling *prices* at a *price* that is lower than previous market levels. In such cases, as is true for other exchanges in markets with changing *prices*, the prudent buyer or seller will act in accordance with the best market information available at the time.

(i) "And without compulsion" establishes that each party is motivated to undertake the transaction, but neither is forced or unduly coerced to complete it.

A10.03 The concept of *market value* presumes a *price* negotiated in an open and competitive market where the participants are acting freely. The market for an *asset* could be an international market or a local market. The market could consist of numerous buyers and sellers or could be one characterised by a limited number of market participants. The market in which the *asset* is presumed exposed for sale is the one in which the *asset* notionally being exchanged is normally exchanged.

A10.04 The *market value* of an *asset* will reflect its highest and best use (see Appendix A90). The highest and best use is the use of an *asset* that maximises its potential and that is possible, legally permissible and financially feasible. The highest and best use may be for continuation of an *asset*'s existing use or for some alternative use. This is determined by the use that a market participant would have in mind for the *asset* when formulating the *price* that it would be willing to bid.

A10.05 The nature and source of the *valuation inputs must* be consistent with the *basis of value*, which in turn *must* have regard to the *valuation intended use*. For example, various *valuation approaches* and *valuation methods* may be used to arrive at an opinion of value provided they use *observable* data. The market approach will, by definition, use market-derived *inputs*. To indicate *market value*, the income approach *should* be applied, using *inputs* and assumptions that would be adopted by participants. To indicate *market value* using the cost approach, the *cost* of an *asset* of equal utility and the appropriate adjustments for physical, functional and economic obsolescence *should* be determined by analysis of market-based *costs* and depreciation.

A10.06 The data available and the circumstances relating to the market for the *asset* being valued *must* determine which *valuation method* or *methods* are most relevant and appropriate. If based on appropriately analysed *observable data*, each *valuation approach* or *valuation method* used *should* provide an indication of *market value*.

A10.07 *Market value* does not reflect attributes of an *asset* that are of *value* to a specific owner or purchaser that are not available to other buyers in the market. Such advantages may relate to the physical, geographic, economic or legal characteristics of an *asset*. *Market value* requires the disregard of any such element of *value* because, at any given date, it is only assumed that there is a willing buyer, not a particular willing buyer.

A20. Market Rent

A20.01 Market rent is the estimated amount for which an interest in real property *should* be leased on the *valuation date* between a willing lessor and a willing lessee on appropriate lease terms in an arm's-length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion.

A20.02 Market rent may be used as a *basis of value* when valuing a lease or an interest created by a lease. In such cases, it is necessary to consider the contract rent and, where it is different, the market rent.

A20.03 The conceptual framework supporting the definition of *market value* (see section A10 above) can be applied to assist in the interpretation of market rent. In particular, the estimated amount excludes a rent inflated or deflated by special terms, considerations or concessions. The "appropriate lease terms" are terms that would typically be agreed in the market for the type of property on the *valuation date* between market participants. An indication of market rent *should* only be provided in conjunction with an indication of the principal lease terms that have been assumed.

A20.04 Contract rent is the rent payable under the terms of an actual lease. It may be fixed for the duration of the lease, or variable. The frequency and basis of calculating variations in the rent will be set out in the lease and *must* be identified and understood in order to establish the total benefits accruing to the lessor and *liability* of the lessee.

A20.05 In some circumstances the market rent may have to be assessed based on terms of an existing lease (e.g., for rental determination purposes where the lease terms are existing and therefore not to be assumed as part of a notional lease).

A20.06 In calculating market rent, the *valuer must* consider the following:

(a) in regard to a market rent subject to a lease, the terms and conditions of that lease are the appropriate lease terms unless those terms and conditions are illegal or contrary to over-arching legislation, and

(b) in regard to a market rent that is not subject to a lease, the assumed terms and conditions are the terms of a notional lease that would typically be agreed in a market for the type of property on the *valuation date* between market participants.

A30. Equitable Value

A30.01 *Equitable value* is the estimated *price* for the transfer of an *asset* or *liability* between identified knowledgeable and willing parties that reflects the respective interests of those parties.

A30.02 *Equitable value* requires the assessment of the *price* that is fair between two specific, identified parties considering the respective advantages or disadvantages that each will gain from the transaction. In contrast, *market value* requires any advantages or disadvantages that would not be available to, or incurred by, market participants generally to be disregarded.

A30.03 *Equitable value* is a broader concept than *market value*. Although in many cases the *price* that is fair between two parties will equate to that obtainable in the market, there will be cases where the assessment of *equitable value* will involve taking into account matters that have to be disregarded in the assessment of *market value*, such as certain elements of *synergistic value* arising because of the combination of the interests.

A30.04 Examples of the use of *equitable value* include:

(a) determination of a *price* that is equitable for a shareholding in a non- quoted *business*, where the holdings of two specific parties may mean that the *price* that is equitable between them is different from the *price* that might be obtainable in the market, and

(b) determination of a *price* that would be equitable between a lessor and a lessee for either the permanent transfer of the leased *asset* or the cancellation of the lease *liability*.

A40. Investment Value/Worth

A40.01 *Investment value* is the *value* of an *asset* to a particular owner or prospective owner for individual investment or operational objectives.

A40.02 *Investment value* is an entity-specific *basis of value*. Although the *value* of an *asset* to the owner may be the same as the amount that could be realised from its sale to another party, this *basis of value* reflects the benefits received by an entity from holding the *asset* and therefore does not involve a presumed exchange. *Investment value* reflects the circumstances and financial objectives of the entity for which the *valuation* is being produced. It is often used for measuring investment performance.

A50. Synergistic Value

A50.01 *Synergistic value* is the result of a combination of two or more *assets* or interests where the combined *value* is more than the sum of the separate *values*. If the synergies are only available to one specific buyer, then *synergistic value* will differ from *market value*, as the *synergistic value* will reflect particular attributes of an *asset* that are only of *value* to a specific purchaser. The added *value* above the aggregate of the respective interests is often referred to as "marriage value" in some *jurisdictions*.

A60. Liquidation Value

A60.01 *Liquidation value* is the amount that would be realised when an *asset* or group of *assets* are sold from a liquidation sale, with the seller being compelled to sell as of a specific date. *Liquidation value* can be determined under two different premises of value:

(a) an orderly transaction with a typical marketing period, or

(b) a forced transaction with a shortened market period.

A60.02 The *valuer must* disclose which premise of value is assumed.

Other Bases of Value

A70. Fair Value (International Financial Reporting Standards) (IFRS)

A70.01 IFRS 13 defines fair value as "the *price* that would be received to sell an *asset* or paid to transfer a *liability* in an orderly transaction between market participants at the measurement date."

A70.02 For financial reporting purposes, over 169 *jurisdictions* require or permit the use of International Accounting Standards published by the International Accounting Standards Board. In addition, the Financial Accounting Standards Board in the United States uses the same definition of fair value in Topic 820.

A80. Fair Value (Legal/Statutory) in different jurisdictions

A80.01 Many national, state and local agencies use fair value as a *basis of value* as defined by courts in prior cases.

IVS-defined Premise of Value

The premises of value appear in the Appendix. The Appendix *must* be followed when using the stated premises of value as applicable.

A90. Highest and Best Use

A90.01 Highest and best use is the use, from a participant perspective, that would produce the highest *value* for an *asset*.

A90.02 The concept of highest and best use is most frequently applied to non- financial *assets.* As many financial *assets* do not have alternative uses, there may be circumstances where the highest and best use of financial *assets* needs to be considered.

A90.03 The highest and best use *must* be physically possible (where applicable), financially feasible, legally allowed and result in the highest *value*. If different from the current use, the *costs* to convert an *asset* to its highest and best use would impact the *value*.

A90.04 The highest and best use for an asset may be its current or existing use when it is being used optimally.

A90.05 The highest and best use of an *asset* valued on a stand-alone basis may be different from its highest and best use as part of a group of *assets*, when its contribution to the overall *value* of the group *must* be considered.

A90.06 The determination of the highest and best use involves consideration of the following:

(a) To establish whether a use is physically possible, regard will be had to what would be considered reasonable by participants.

(b) To reflect the requirement to be legally permissible, any legal restrictions on the use of the *asset*, e.g., town planning/zoning designations, need to be taken into account as well as the likelihood that these restrictions will change.

(c) The requirement that the use be financially feasible takes into account whether an alternative use that is physically possible and legally permissible will generate sufficient return to a typical participant, after taking into account the *costs* of conversion to that use, over and above the return on the existing use.

A100. Current Use/Existing Use

A100.01 Current use/existing use is the current way an *asset, liability*, or group of *assets* and/or *liabilities* is used. The current use may be, but is not necessarily, also the highest and best use.

A110. Orderly Liquidation

A110.01 An orderly liquidation describes the *value* of a group of *assets* that could be realised in a liquidation sale, given a reasonable period of time to find a purchaser (or purchasers), with the seller being compelled to sell on an as-is, where-is basis.

A110.02 The reasonable period of time to find a purchaser (or purchasers) may vary by *asset* type and market conditions.

A120. Forced Sale

A120.01 The term "forced sale" is often used in circumstances where a seller is under compulsion to sell and that, as a consequence, a proper marketing period is not possible, and buyers may not be able to undertake adequate due diligence. The *price* that could be obtained in these circumstances will depend upon the nature of the pressure on the seller and the reasons why proper marketing cannot be undertaken. It may also reflect the consequences for the seller of failing to sell within the period available. Unless the nature of, and the reason for, the constraints on the seller are known, the *price* obtainable in a forced sale cannot be realistically estimated. The *price* that a seller will accept in a forced sale will reflect its particular circumstances, rather than those of the hypothetical willing seller in the *market value* definition. A "forced" sale is a description of the situation under which the exchange takes place, not a distinct *basis of value*.

A120.02 If an indication of the *price* obtainable under forced sale circumstances is required, it will be necessary to clearly identify the reasons for the constraint on the seller, including the consequences of failing to sell in the specified period by setting out appropriate assumptions. If these circumstances do not exist at the *valuation date*, these *must* be clearly identified as special assumptions.

A120.03 A forced sale typically reflects the *price* that a specified property is likely to bring under all of the following conditions:

(a) consummation of a sale within a short time period,

(b) the *asset* is subjected to market conditions prevailing as of the *valuation date* or assumed timescale within which the transaction is to be completed,

(c) both the buyer and the seller are acting prudently and knowledgeably,

(d) the seller is under compulsion to sell,

(e) the buyer would receive only benefits that are available to others and would derive no material benefit(s) from the transaction not available to other market participants,

(f) both parties are acting in what they consider their best interests, and

(g) a normal marketing effort is not possible due to the brief exposure time.

A120.04 Sales in an inactive or falling market are not automatically "forced sales" simply because a seller might hope for a better *price* if conditions improved. Unless the seller is compelled to sell by a deadline that prevents proper marketing, the seller will be a willing seller within the definition of *market value* (see IVS 102 *Bases of Value*, Appendix A10).

A120.05 While confirmed "forced sale" transactions would generally be excluded from consideration in a *valuation* where the *basis of value* is *market value*, it can be difficult to verify that an arm's-length transaction in a market was a forced sale.

IVS 103 Valuation Approaches

IVS 103 *Valuation Approaches* requires the *valuer* to consider and select the most relevant and appropriate *valuation approach(es)* for the *valuation* of the *asset* and/or *liability* based on its *intended use(s)*.

10. Introduction

10.01 Consideration *must* be given to the relevant and appropriate *valuation approaches*. One or more *valuation approaches* may be used to arrive at the *value* in accordance with the *basis of value*. The three approaches described and defined below are the principal *valuation approaches*:

(a) market approach,

(b) income approach, and

(c) cost approach.

10.02 The selection of the approach *should* seek to maximise the use of observable *inputs*, as appropriate.

10.03 Each of these *valuation approaches* includes different, detailed methods of application (see IVS 103 *Valuation Approaches*, Appendices A10-A30).

10.04 The goal in selecting *valuation approaches* and *methods* for an *asset* and/ or *liability* is to find the most appropriate method under the circumstances of the *valuation*. No single method is suitable in every possible situation. In their selection process, the *valuer should* consider at a minimum:

(a) the appropriate *basis(es) of value* and premise(s) of value, determined by the terms and *intended use* of the *valuation*,

(b) the respective strengths and weaknesses of the possible *valuation approaches* and *valuation methods*,

(c) the appropriateness of each method in view of the nature of the *asset(s)* and/or *liability/ies*, and the *valuation approaches* or *valuation methods* used by participants in the relevant market,

(d) the availability of reliable information needed to apply the method(s), and

(e) *price* information from an active market.

10.05 The *valuer* is not required to use more than one method for the *valuation* of an *asset* and/or *liability,* particularly when the *valuer* has a high degree of confidence in the accuracy and reliability of a single method, given the facts and circumstances of the *valuation*.

10.06 The *valuer should* consider the use of multiple approaches and methods. More than one *valuation approach* or *valuation method should* be considered and may be used to arrive at an indication of *value*, particularly when there are insufficient factual or observable *inputs* for a single method to produce a reliable conclusion.

10.07 Where more than one *valuation approach* and *valuation method* is used, or even multiple methods within a single approach, the *value* based on those multiple approaches and/or methods *should* be reasonable and the process of analysing and reconciling the differing *values* into a single conclusion, without averaging, *should* be described by the *valuer* in the report.

10.08 While this standard includes discussion of certain *valuation methods* within the market, income and cost approaches, it does not provide a comprehensive list of all possible *valuation methods* that may be appropriate. It is the *valuer's* responsibility to choose the appropriate method(s) for each valuation engagement. Compliance with IVS may require the *valuer* to use a method not defined or mentioned in IVS.

10.09 When different *valuation approaches* and/or *valuation methods* result in widely divergent indications of *value*, the *valuer should* perform procedures to understand why the indication of *value* differ, as it is generally not appropriate to simply *weight* two or more *significantly* divergent indications of value.

10.10 In such cases, the *valuer should* reconsider the guidance in IVS 103 *Valuation Approaches*, para 10.04, to determine which one of the *valuation approaches* and/or *valuation methods* provides a better or more reliable indication of *value*.

10.11 The *valuer should* maximise the use of relevant observable market information in all three *approaches*. Regardless of the source of the *inputs* and assumptions used in a *valuation,* the *valuer must* perform appropriate analysis to evaluate those *inputs* and assumptions and their appropriateness for the *intended use* of the *valuation*.

10.12 The *valuer should* exercise *professional judgement* in determining the *valuation approaches, valuation methods*, and procedures. If, in the *valuer's professional judgment*, the limitations placed on the *valuer's* selection of the *valuation approaches, valuation methods*, and procedures for the *valuation* are overly restrictive then this may not result in an IVS-compliant *valuation*. (see IVS 101 *Scope of Work*, para 10.05).

10.13 No one approach or method is applicable in all circumstances, with *price* information from an active market generally considered to be the strongest evidence of *value*. Some *bases of value* may prohibit the *valuer* from making subjective adjustments to *price* information from an active market. *Price* information from an inactive market may still be good evidence of *value*, but subjective adjustments may be needed.

10.14 A *valuation* may be limited or restricted where the *valuer* is not able to employ the *valuation approaches, valuation methods* and procedures that a reasonable and informed third party would perform, and it is reasonable to expect that the effect of the limitation or restriction on the estimate of *value* could be *significant.*

20. Market Approach

20.01 The market approach provides an indication of *value* by comparing the *asset* and/or *liability* with identical or comparable (that is, similar) *asset* and/ or *liability* for which *price* information is available.

20.02 The market approach *should* always account for trading volume, trading frequency, range of observed *prices*, and proximity to the *valuation date*. The market approach *should* be applied and afforded *significant weight* under the following circumstances:

(a) the subject *asset* has recently been sold in a transaction appropriate for consideration under the *basis of value*,

(b) the subject *asset* or substantially similar *assets* are actively publicly traded, and/or

(c) there are frequent and/or recent observable transactions in substantially similar *assets*.

20.03 Although the above circumstances would indicate that the market approach *should* be applied and afforded *significant weight*, when using the market approach under the following circumstances, the *valuer should* consider whether any other approaches can be applied and *weighted* to corroborate the indication of *value* from the market approach.

(a) transactions involving the subject *asset* or substantially similar *assets* are not recent enough considering the levels of volatility and activity in the market,

(b) the *asset* or substantially similar *assets* are publicly traded, but not actively,

(c) information on market transactions is available, but the comparable *assets* have *significant* differences to the subject *asset,* potentially requiring subjective adjustments,

(d) information on recent transactions is not reliable (i.e., hearsay, missing information, synergistic purchaser, not arm's length, distressed sale, etc).

20.04 The heterogeneous nature of many *assets* means that it is often not possible to find market evidence of transactions involving identical or similar *assets.* Even in circumstances where the market approach is not used, the use of observable *inputs should* be maximised in the application of other approaches (e.g., market-based valuation metrics such as effective yields and rates of return).

20.05 When comparable market information does not relate to the exact or substantially the same *asset,* the *valuer must* perform a comparative analysis of qualitative and quantitative similarities and differences between comparable *assets* and the subject *asset*. It will often be necessary to make adjustments based on this comparative analysis. Those adjustments *must* be reasonable, and the *valuer must* document the reasons for the adjustments and how they were quantified.

20.06 The market approach often uses market multiples derived from a set of comparables, each with different multiples. The selection of the appropriate multiple within the range may require adjustment and *professional judgement*, considering qualitative and quantitative factors.

30. Income Approach

30.01 The income approach provides an indication of *value* by converting projected cash flows to a single current *value*. Under the income approach, the *value* of an *asset* is determined by reference to the *value* of income, cash flow or *cost* savings generated by the *asset*.

30.02 The income approach *should* be applied and afforded *significant weight* under the following circumstances:

(a) the income-producing ability of the *asset* is the critical element affecting *value* from a participant perspective, and/or

(b) reasonable projections of the amount and timing of future income are available for the subject *asset*, but there are no relevant and reliable market comparables.

30.03 Although the above circumstances would indicate that the income approach *should* be applied and afforded *significant weight*, when using the income approach under the following circumstances, the *valuer should* consider whether any other approaches can be applied and weighted to corroborate the indication of *value* from the income approach:

(a) the income-producing ability of the subject *asset* is only one of several factors affecting *value* from a participant perspective,

(b) there is *significant* uncertainty regarding the amount and timing of future income related to the subject *asset*,

(c) there is a lack of access to information related to the subject *asset* (for example, a minority owner may have access to historical financial statements but not forecasts/budgets), and/or

(d) the subject *asset* has not yet begun generating income but is projected to do so.

30.04 A fundamental basis for the income approach is that investors expect to receive a return on their investments and that such a return *should* reflect the perceived level of risk in the investment.

30.05 Generally, investors can only expect to be compensated for systematic risk (also known as "market risk" or "undiversifiable risk").

40. Cost Approach

40.01 The cost approach provides an indication of *value* using the economic principle that a buyer will pay no more for an *asset* than the *cost* to obtain an *asset* of equal utility, whether by purchase or by construction, unless undue time, inconvenience, risk or other factors are involved. The approach provides an indication of *value* by calculating the current replacement or reproduction cost of an *asset* and making deductions for all relevant forms of obsolescence.

40.02 The cost approach *should* be applied and afforded *significant weight* under the following circumstances:

(a) participants would be able to recreate an *asset* with substantially the same utility as the subject *asset*, without legal or regulatory restrictions, and the *asset* could be recreated quickly enough that a participant would not be willing to pay a *significant* premium for the ability to use the subject *asset* immediately,

(b) the *asset* is not directly income-generating, and the unique nature of the *asset* makes using an income approach or market approach unfeasible,

(c) the *basis of value* being used is fundamentally based on replacement cost, and/or

(d) the *asset* was recently created or issued and sold to market participants, such that there is a high degree of reliability in the assumptions used in the cost approach.

40.03 Although the circumstances in para 40.02 would indicate that the cost approach *should* be applied and afforded *significant weight*, when using the cost approach under the following circumstances, the *valuer should* consider whether any other approaches can be applied and weighted to corroborate the indication of *value* from the cost approach:

(a) participants might consider recreating an *asset* of similar utility, but there are potential legal or regulatory hurdles or *significant* time involved in recreating the *asset,*

(b) when the cost approach is being used as a reasonableness check to other approaches (for example, using the cost approach to confirm whether a *business* valued as a going concern might be more valuable on a liquidation basis).

40.04 The *value* of a partially completed *asset* will generally reflect the *costs* incurred to date in the creation of the *asset* (and whether those *costs* contributed to *value*) and the expectations of participants regarding the *value* of the *asset* when complete, but also consider the *costs* and time required to complete the *asset* and appropriate adjustments for profit and risk.

IVS 103 Appendix: Valuation Methods

The *valuation methods* provided in this appendix may not apply to all asset classes or use cases. However, the appendix *must* be followed when using the applicable *valuation method*.

A10. Market Approach Methods

A10.01 Comparable Transactions Method

A10.02 The comparable transactions method, also known as the guideline transactions method, utilises information about transactions involving *assets* that are the same or similar to the subject *asset* to arrive at an indication of *value*.

A10.03 When the comparable transactions considered involve the subject *asset,* this method is sometimes referred to as the prior transactions' method.

A10.04 If few recent transactions have occurred, the *valuer* may consider the *prices* of identical or similar *assets* that are listed or offered for sale, provided the relevance of this information is clearly established, critically analysed and documented. This is sometimes referred to as the comparable listings method and *should* not be used as the sole indication of *value* but can be appropriate for consideration together with other methods.

A10.05 When considering listings or offers to buy or sell, the *weight* afforded to the listings/offer *price should* consider the level of commitment inherent in the *price* and how long the listing/offer has been on the market. For example, an offer that represents a binding commitment to purchase or sell an *asset* at a given *price* may be given more *weight* than a quoted *price* without such a binding commitment.

A10.06 The comparable transaction method can use a variety of different comparable evidence, also known as units of comparison, which form the basis of the comparison. For example, common units of comparison used for real property interests include *price p*er square foot (or per square metre), rent per square foot (or per square metre) and capitalisation rates. Common units of comparison used in business valuation include EBITDA (Earnings Before Interest, Tax, Depreciation and Amortisation) multiples, earnings multiples, revenue multiples and book value multiples. Common units of comparison used in *financial instrument* valuation include metrics such as yields and interest rate spreads. The units of comparison used by participants can differ between asset classes and across industries and geographies.

A10.07 A subset of the comparable transactions method is matrix pricing, which is principally used to value certain *financial instrument*s, such as debt securities, without relying exclusively on quoted *prices* for the specific securities but rather relying on the securities' relationship to other benchmark quoted securities and their attributes (i.e., yield).

A10.08 The key steps in the comparable transactions' method are:

(a) identify the units of comparison that are used by participants in the relevant market,

(b) identify the relevant comparable transactions and calculate the key valuation metrics for those transactions,

(c) perform a consistent comparative analysis of qualitative and quantitative similarities and differences between the comparable *assets* and the subject *asset*,

(d) make necessary adjustments, if any, to the valuation metrics to reflect differences between the subject *asset* and the comparable *assets*,

(e) apply the adjusted valuation metrics to the subject *asset*, and

(f) if multiple valuation metrics were used, reconcile the indications of *value*.

A10.09 The *valuer should* choose comparable transactions within the following context:

(a) evidence of several transactions is generally preferable to a single transaction or event,

(b) evidence from transactions of very similar *assets* (ideally identical) provides a better indication of *value* than *assets* where the transaction *prices* require *significant* adjustments,

(c) transactions that happen closer to the *valuation date* are more representative of the market at that date than older/ dated transactions, particularly in volatile markets,

(d) for most *bases of value*, the transactions *should* be arm's length between unrelated parties,

(e) sufficient information on the transaction *should* be available to allow the *valuer* to develop a reasonable understanding of the comparable *asset* and assess the valuation metrics/comparable evidence.

(f) information on the comparable transactions *should* be from a reliable and trusted source, and

(g) actual transactions provide better valuation evidence than intended transactions.

A10.10 The *valuer should* analyse and adjust for any *significant* differences between the comparable transactions and the subject *asset*. Examples of common differences that could warrant adjustments may include, but are not limited to:

(a) material characteristics (age, size, specifications, etc),

(b) size adjustments,

(c) size of the stake (partial or majority),

(d) relevant restrictions on either the subject *asset* or the comparable *assets*,

(e) geographical location (location of the *asset* and/or location of where the *asset* is likely to be transacted/used) and the related economic and regulatory environments,

(f) profitability or profit-making capability of the *assets*,

(g) historical and expected growth,

(h) yields/coupon rates,

(i) types of collateral,

(j) unusual terms in the comparable transactions,

(k) differences related to marketability and control characteristics of the comparable and the subject *asset*,

(l) differences in *ESG* considerations, and

(m) ownership characteristics (e.g., legal form of ownership, amount percentage held).

A10.11 Guideline publicly traded comparable method

A10.12 The guideline publicly traded comparable method utilises information on publicly- traded comparables that are similar to the subject *asset* to arrive at an indication of *value*.

A10.13 This method is similar to the comparable transactions method. However, there are several differences due to the comparables being publicly traded, as follows:

(a) the valuation metrics/comparable evidence is available as of the *valuation date,*

(b) detailed information on the comparables is readily available in public filings,

(c) the information contained in public filings is prepared in accordance with accounting, regulatory and legal standards.

A10.14 The method *should* be used only when the subject *asset* is sufficiently similar to the publicly traded comparables to allow for meaningful comparison.

A10.15 The key steps in the guideline publicly traded comparables method are as follows:

(a) identify the valuation metrics/comparable evidence that are used by participants in the relevant market,

(b) identify the relevant guideline publicly traded comparables and calculate the key valuation metrics for those transactions,

(c) perform a consistent comparative analysis of qualitative and quantitative similarities and differences between the publicly traded comparables and the subject *asset*,

(d) make necessary adjustments, if any, to the valuation metrics to reflect differences between the subject *asset* and the publicly traded comparables,

(e) apply the adjusted valuation metrics to the subject *asset*, and

(f) weight the indications of *value* if multiple valuation metrics were used.

A10.16 The *valuer should* choose publicly traded comparables within the following context:

(a) consideration of multiple publicly traded comparables is preferred to the use of a single comparable,

(b) evidence from similar publicly traded comparables (for example, with similar market segment, geographic area, size in revenue and/or *assets*, growth rates, profit margins, leverage, liquidity and diversification) provides a better indication of *value* than comparables that require *significant* adjustments, and

(c) securities that are actively traded provide more meaningful evidence than thinly traded securities.

A10.17 The *valuer should* analyse and adjust for any material differences between the guideline publicly traded comparables and the subject *asset*. Examples of common differences that could warrant adjustments may include, but are not limited to:

(a) material characteristics (age, size, specifications, etc),

(b) relevant discounts and premiums (see IVS 103 *Valuation Approaches*),

(c) relevant restrictions on either the subject *asset* or the comparable *assets,*

(d) geographical location of the underlying company and the related economic and regulatory environments,

(e) profitability or profit-making capability of the *assets*,

(f) historical and expected growth,

(g) differences related to marketability and control characteristics of the comparable and the subject *asset*,

(h) differences in *ESG* considerations, and

(i) subordination.

A10.18 Other Market-Approach Considerations

A10.19 The following paragraphs address a non-exhaustive list of certain special considerations that may form part of a market approach *valuation*.

A10.20 Anecdotal or "rule-of-thumb" valuation benchmarks are sometimes considered to be a market approach. However, indications of value derived from the use of such rules *should* not be given substantial *weight* unless it can be shown that buyers and sellers place *significant* reliance on them.

A10.21 In the market approach, the fundamental basis for adjusting is to account for differences between the subject *asset* and the guideline transactions or publicly traded securities. Some of the most common adjustments made in the market approach are known as discounts and premiums.

(a) Discounts for Lack of Marketability (DLOM) *should* be applied when the comparables are deemed to have superior marketability to the subject *asset*. A DLOM reflects the concept

that when comparing otherwise identical *assets*, a readily marketable *asset* would have a higher value than an *asset* with a long marketing period or restrictions on the ability to sell the *asset*. For example, publicly traded securities can be bought and sold nearly instantaneously while shares in a private company may require a *significant* amount of time to identify potential buyers and complete a transaction. Certain *bases of value* allow the consideration of restrictions on marketability that are inherent in the subject *asset* but prohibit consideration of marketability restrictions that are specific to a particular owner. DLOMs may be quantified using any reasonable method, but are typically calculated using option pricing models, studies that compare the value of publicly-traded shares and restricted shares in the same company, or studies that compare the value of shares in a company before and after an initial public offering.

(b) Control Premiums, sometimes referred to as Market Participant Acquisition Premiums (MPAPs) and Discounts for Lack of Control (DLOC), are applied to reflect differences between the comparables and the subject *asset* with regard to the ability to make decisions and the changes that can be made as a result of exercising control. All else being equal, participants would generally prefer to have control over a subject *asset* than not. However, participants' willingness to pay a Control Premium or DLOC will generally be a factor of whether the ability to exercise control enhances the economic benefits available to the owner of the subject *asset*. Control Premiums and DLOCs may be quantified using any reasonable method but are typically calculated based on either an analysis of the specific cash flow enhancements or reductions in risk associated with control or by comparing observed *prices* paid for controlling interests in publicly-traded securities to the publicly-traded price before such a transaction is announced. Examples of circumstances where Control Premiums and DLOCs *should* be considered include where:

(i) Shares of public companies generally do not have the ability to make decisions related to the operations of the company (they lack control). As such, when applying the guideline public comparable method to value a subject *asset* that reflects a controlling interest, a control premium may be appropriate, or

(ii) The guideline transactions in the guideline transaction method often reflect transactions of controlling interests. When using that method to value a subject *asset* that reflects a minority interest, a DLOC may be appropriate.

(iii) Blockage discounts are sometimes applied when the subject *asset* represents a large block of shares in a publicly traded security such that an owner would not be able to quickly sell the block in the public market without negatively influencing the publicly traded *price*. Blockage discounts may be quantified using any reasonable method but typically a model is used that considers the length of time over which a participant could sell the subject shares without negatively impacting the publicly traded *price* (i.e., selling a relatively small portion of the security's typical daily trading volume each day). Under certain *bases of value*, particularly fair value for financial reporting purposes, the inclusion of blockage discounts is prohibited.

A20. Income Approach Methods

A20.01 Although there are several ways to implement the income approach, methods under the income approach are effectively based on discounting future amounts of cash flow to their present value. They are variations of the Discounted Cash Flow (DCF) method and the concepts in the following paragraphs apply in part or in full to all income approach methods.

A20.02 Discounted Cash Flow (DCF) Method

A20.03 Under the DCF method the forecasted cash flow is discounted back to the *valuation date*, resulting in a present value of the *asset*.

A20.04 In some circumstances for long-lived or indefinite-lived *assets*, DCF may include a terminal value which represents the *value* of the *asset* at the end of the explicit projection period. In other circumstances, the *value* of an *asset* may be calculated solely using a terminal value with no explicit projection period. This is sometimes referred to as an income capitalisation method.

A20.05 The key steps in the DCF method are:

(a) choose the most appropriate type of cash flow for the nature of the subject *asset* and the *valuation* (i.e., pre-tax or post-tax, total cash flows or cash flows to equity, real or nominal, etc),

(b) determine the most appropriate explicit period, if any, over which the cash flow will be forecast,

(c) prepare cash flow forecasts for that period,

(d) determine whether a terminal value is appropriate for the subject *asset* at the end of the explicit forecast period (if any) and then determine the appropriate terminal value for the nature of the *asset*,

(e) determine the appropriate *discount rate*, and

(f) apply the *discount rate* to the forecasted future cash flow, including the terminal value, if any.

A20.06 Type of Cash Flow

A20.07 When selecting the appropriate type of cash flow for the nature of the *asset* or *valuation*, the *valuer must* consider the following factors.

A20.08 In addition, the *discount rate* and other *inputs must* be consistent with the type of cash flow chosen.

(a) Cash flow to whole *asset* or partial interest: typically, cash flow to the whole *asset* is used. However, occasionally other levels of income may be used as well, such as cash flow to equity (after payment of interest and principal on debt) or dividends (only the cash flow distributed to equity owners). Cash flow to the whole *asset* is most commonly used because an *asset should* theoretically have a single *value* that is independent of how it is financed or whether income is paid as dividends or reinvested.

(b) The cash flow can be pre-tax or post-tax: the tax rate applied *should* be consistent with the *basis of value* and in many instances would be a participant tax rate rather than an owner-specific one.

(c) Nominal versus real: real cash flow does not consider inflation whereas a nominal cash flow includes expectations regarding inflation. If expected cash flow incorporates an expected inflation rate, the *discount rate* has to include an adjustment for inflation as well,

(d) Currency: the choice of currency used may have an impact on assumptions related to inflation and risk. This is particularly true in emerging markets or in currencies with high inflation rates. The currency in which the forecast is prepared and related risks are separate and distinct from risks associated with the country(ies) in which the *asset* resides or operates.

(e) The type of cash flow contained in the forecast: for example, probability-*weighted* scenarios, most likely cash flows, contractual cash flows, etc.

A20.09 The type of cash flow chosen *should* be in accordance with the participant's viewpoints. For example, cash flows and *discount rates* for real property are customarily developed on a pre-tax basis while cash flows and *discount rates* for *businesses* are normally developed on a post-tax basis. Adjusting between pre-tax and post-tax rates can be complex and prone to error and *should* be approached with caution.

A20.10 When a *valuation* is being conducted in a currency ("the valuation currency") that differs from the currency used in the cash flow projections ("the functional currency"), the *valuer should* use one of the following two currency translation methods:

(a) Discount the cash flows in the functional currency using a *discount rate* appropriate for that functional currency. Convert the present value of the cash flows to the valuation currency at the spot rate on the *valuation date*.

(b) Use a currency exchange forward curve to translate the functional currency projections into valuation currency projections and discount the projections using a *discount rate* appropriate for the valuation currency. When a reliable currency exchange forward curve is not available (for example, due to lack of liquidity in the relevant currency exchange markets), it may not be possible to use this method and only the method described in para A20.07 (a) can be applied.

A20.11 Explicit Forecast Period

A20.12 The selection criteria for the explicit forecast period will depend upon the *intended use* of the *valuation*, the nature of the *asset*, the information available and the required *bases of value*. For example, in the case of an *asset* with a short life, it is more likely to be both possible and relevant to project cash flow over its entire life.

A20.13 The *valuer should* consider the following factors when selecting the explicit forecast period:

(a) the life of the *asset*,

(b) a reasonable period for which reliable data is available on which to base the projections,

(c) the minimum explicit forecast period sufficient for an *asset* to achieve a stabilised level of growth and profits, after which a terminal value can be used,

(d) in the *valuation* of cyclical *assets*, the explicit forecast period *should* generally include an entire cycle, when possible, and

(e) for *assets* with finite lives which is the case with most *financial instruments*, the cash flows will typically be forecast over the full life of the *asset*.

A20.14 In some instances, particularly when the *asset* is operating at a stabilised level of growth and profits at the *valuation date*, it may not be necessary to consider an explicit forecast period, and a terminal value may form the only *basis of value* (sometimes referred to as an income capitalisation method).

A20.15 The intended holding period for one investor *should* not be the only consideration in selecting an explicit forecast period and *should* not impact the *value* of an *asset*. However, the period over which an *asset* is intended to be held may be considered in determining the explicit forecast period if the objective of the *valuation* is to determine its *investment value*.

A20.16 Cash Flow Forecasts

A20.17 Cash flow for the explicit forecast period is constructed using prospective financial information (PFI) (projected income/inflows and expenditure/ outflows).

A20.18 As required by IVS 103 *Valuation Approaches*, regardless of the source of the PFI (e.g., management forecast), the *valuer must* perform analysis to evaluate the PFI, the assumptions underlying the PFI and their appropriateness for the *intended use* of the *valuation*. The suitability of the PFI and the underlying assumptions will depend on the *intended use* and the required *bases of value*. For example, cash flow used to determine *market value should* reflect PFI that would be anticipated by participants; in contrast, *investment value* can be measured using cash flow that is based on the reasonable forecasts from the perspective of a particular investor.

A20.19 The cash flow should be divided into suitable periodic intervals (e.g., weekly, monthly, quarterly or annually) with the choice of interval depending upon the nature of the *asset*, the pattern of the cash flow, the data available, and the length of the forecast period.

A20.20 The projected cash flow *should* capture the amount and timing of all future cash inflows and outflows associated with the subject *asset* from the perspective appropriate to the *basis of value*.

A20.21 Typically, the projected cash flow will reflect one of the following:

(a) contractual or promised cash flow,

(b) the single most likely set of cash flow,

(c) the probability-*weighted* expected cash flow, or

(d) multiple scenarios of possible future cash flow.

A20.22 Different types of cash flow often reflect different levels of risk and may require different *discount rates*. For example, probability-*weighted* expected cash flows incorporate expectations regarding all possible outcomes and are not dependent on any specific conditions or events (note that when a probability-*weighted* expected cash flow is used, it is not always necessary for the *valuer* to account for distributions of all possible cash flows using complex models and techniques. Rather, the *valuer* may develop a limited number of discrete scenarios and probabilities that capture the array of possible cash flows). A single most likely set of cash flows may be conditional on certain future events and therefore could reflect different risk and warrant a different *discount rate*.

A20.23 While the *valuer* often receives PFI that reflects accounting income and expenses, it is generally preferable to use cash flow that would be anticipated by participants as the basis for *valuations*. For example, non-cash expenses, such as depreciation and amortisation, *should* be added back, and expected cash outflows relating to capital expenditures or to changes in working capital *should* be deducted in calculating cash flow.

A20.24 The *valuer must* ensure that seasonality and cyclicality in the *asset* have been appropriately considered in the cash flow forecasts.

A20.25 Terminal Value

A20.26 Where the *asset* is expected to operate beyond the explicit forecast period, the *valuer must* estimate the *value* of the *asset* at the end of that period. The terminal value *must* then be discounted back to the *valuation date*, normally using the same *discount rate* as applied to the forecast cash flow.

A20.27 The terminal value *should* consider:

(a) whether the *asset* is deteriorating/finite-lived in nature or indefinite- lived, as this will influence the method used to calculate a terminal value,

(b) whether there is future growth potential for the *asset* beyond the explicit forecast period,

(c) whether a pre-determined fixed capital amount, capital expenditure or return condition is expected to be received at the end of the explicit forecast period,

(d) the expected risk level of the *asset* at the time the terminal value is calculated,

(e) for cyclical *assets*, the terminal value *should* consider the cyclical nature of the *asset* and *should* not be performed in a way that assumes "peak" or "trough" levels of cash flows in perpetuity,

(f) the tax attributes inherent in the *asset* at the end of the explicit forecast period (if any) and whether those tax attributes would be expected to continue into perpetuity, and

(g) risks and opportunities associated with *environmental, social and governance* characteristics of the subject *asset*.

A20.28 The *valuer* may apply any reasonable method for calculating a terminal value. While there are many different approaches to calculating a terminal value, the three most commonly used are:

(a) Gordon growth model/constant growth model,

(b) market approach/exit value (appropriate for both deteriorating/ finite- lived *assets* and indefinite-lived *assets*), and

(c) salvage value/ disposal cost, which is appropriate only for deteriorating/finite- lived *assets*.

A20.29 Gordon Growth Model/Constant Growth Model

A20.30 The Gordon growth/constant growth model assumes that the cash flow from the *asset* grows (or declines) at a constant rate into perpetuity.

A20.31 Market Approach/Exit Value

A20.32 The market approach/exit value method can be performed in several ways, but the ultimate goal is to calculate the *value* of the *asset* at the end of the explicit cash flow forecast.

A20.33 Common ways to calculate the terminal value under this method include application of a market-evidence based capitalisation factor or a market multiple.

A20.34 When a market approach/exit value is used, the *valuer should* comply with the requirements in the market approach and market approach methods section of this standard (see IVS 103 *Valuation Approaches*, section 20 and Appendix A10). However, the *valuer should* also consider the expected market conditions at the end of the explicit forecast period and make adjustments accordingly.

A20.35 Salvage Value/Disposal Cost

A20.36 The terminal value of some *assets* may have little or no relationship to the preceding cash flow. Examples of such *assets* include wasting *assets* such as a mine or an oil well.

A20.37 In such cases, the terminal value is typically calculated as the salvage value of the *asset*, less *costs* to dispose of the *asset*. In circumstances where the *costs* exceed the salvage value, the terminal value is negative and referred to as a disposal cost or an *asset* retirement obligation.

A20.38 Discount Rate

A20.39 The rate at which the forecast cash flow is discounted *should* reflect not only the time value of money, but also the risks associated with the type of cash flow and the future operations of the *asset*.

A20.40 The *discount rate must* be consistent with the type of cash flow.

A20.41 The *valuer* may use any reasonable method for developing an appropriate *discount rate*. While there are many methods for developing a *discount rate* or determining the reasonableness of a *discount rate*, a non-exhaustive list of common methods includes:

(a) a capital asset pricing model (CAPM),

(b) a *weighted*-average-cost-of-capital (WACC),

(c) observed or inferred rates/yields,

(d) a build-up method.

A20.42 The *valuer should* consider corroborative analyses when assessing the appropriateness of a *discount rate*. A non-exhaustive list of common analyses *should* include, but is not limited to:

(a) an internal rate of return (IRR),

(b) a *weighted* average return on assets (WARA),

(c) *value* indications from other approaches, such as market approach, or comparing implied multiples from the income approach with guideline company market multiples or transaction multiples.

A20.43 When developing a *discount rate*, the *valuer should* consider:

(a) the type of *asset* being valued. For example, *discount rates* used in valuing debt are different to those used when valuing real property or a *business*,

(b) the rates implicit in comparable transactions in the market,

(c) the geographical location of the *asset* and/or the location of the markets in which it trades,

(d) the life/term and/or maturity of the *asset* and the consistency of *inputs*. For example, the maturity of the risk-free rate applied will depend on the circumstances, but a common approach is to match the maturity of the risk-free rate to the time horizon of the cash flows being considered.

(e) the applicable *bases of value*, and

(f) the currency denomination of the projected cash flows.

A20.44 In developing a *discount rate*, the *valuer must*:

(a) document the method used for developing the *discount rate* and support its use,

(b) provide evidence for the derivation of the *discount rate*, including the identification of the *significant inputs* and support for their derivation or source.

A20.45 The *valuer must* consider the circumstances for which the forecast was prepared and whether the forecast assumptions are consistent with the *basis of value* being applied. If the forecast assumptions are not consistent with the *basis of value*, the *valuer should* adjust the forecast or *discount rate.*

A20.46 The *valuer must* consider the risk of achieving the forecast cash flow of the *asset* when developing the *discount rate*. Specifically, the *valuer must* evaluate whether the risk underlying the forecast cash flow assumptions are captured in the *discount rate*.

A20.47 While there are many ways to assess the risk of achieving the forecast cash flow, a non-exhaustive list of common procedures includes:

(a) identify the key components of the forecast cash flow and compare the forecast cash flow key components to:

(i) historical operating and financial performance of the *asset*,

(ii) historical and expected performance of comparable *assets*,

(iii) historical and expected performance for the industry, and

(iv) expected near-term and long-term growth rates of the country or region in which the *asset* primarily operates,

(b) confirm whether the forecast cash flow represents expected cash flows (i.e., probability-*weighted* scenarios), as opposed to most likely cash flows (i.e., most probable scenario) of the *asset*, or some other type of cash flow,

(c) if utilising expected cash flows, consider the relative dispersion of potential outcomes used to derive the expected cash flows (e.g., higher dispersion may indicate a need for an adjustment to the *discount rate*),

(d) compare prior forecasts of the *asset* to actual results to assess the accuracy and reliability of managements' estimates,

(e) consider qualitative factors,

(f) consider the value indications such as those resulting from the market approach, and

(g) consider the risks associated with *environmental, social and governance* characteristics of the subject *asset*.

A20.48 If the *valuer* determines that certain risks included in the forecast cash flow for the *asset* have not been captured in the *discount rate*, the *valuer must*:

(a) Adjust the forecast; The *valuer should* provide the rationale for why the adjustments were necessary, undertake quantitative procedures to support the adjustments, and document the nature and amount of the adjustments.

(b) Adjust the *discount rate* to account for those risks not already captured: When adjusting the *discount rate*, the *valuer should* document why it was not appropriate or possible to adjust the cash flow forecast, provide the rationale for why such risks are not otherwise captured in the *discount rate*, undertake quantitative and qualitative procedures to support the adjustments, and document the nature and amount of the adjustment. The use of quantitative procedures does not necessarily entail quantitative derivation of the adjustment to the *discount rate*. The *valuer should* not necessarily conduct an exhaustive quantitative process but *should* take into account all the information that is reasonably available.

A20.49 In developing a *discount rate*, it may be appropriate to consider the impact the *asset*'s unit of account has on unsystematic risks and the derivation of the overall *discount rate*. For example, the *valuer should* consider whether market participants would assess the *discount rate* for the *asset* on a stand-alone basis, or whether market participants would assess the *asset* in the context of a broader portfolio and therefore consider the potential diversification of unsystematic risks.

A20.50 The *valuer should* consider the impact of inter-company arrangements and transfer pricing on the *discount rate*. For example, inter-company arrangements sometimes specify fixed or guaranteed returns for some *businesses* or entities within a larger enterprise, which would lower the risk of the entity forecasted cash flows and reduce the appropriate *discount rate*. However, other *businesses* or entities within the enterprise are deemed to be residual earners in which both excess return and risk are allocated, thereby increasing the risk of the entity forecasted cash flows and the appropriate *discount rate*.

A30. Cost Approach Methods

A30.01 The principal methods under the cost approach include but are not limited to:

(a) replacement cost method: a method that indicates *value* by calculating the *cost* of a similar *asset* offering equivalent utility,

(b) reproduction cost method: a method under the *cost* that indicates *value* by calculating the *cost* to recreating a replica of an *asset*, and

(c) summation method: a method that calculates the *value* of an *asset* by the addition of the separate *values* of its component parts.

A30.02 Replacement Cost Method

A30.03 Generally, replacement cost is the *cost* that is relevant to determining the *price* that a participant would pay as it is based on replicating the utility of the *asset,* not the exact physical properties of the *asset*.

A30.04 Replacement cost is often adjusted for physical deterioration and all relevant forms of obsolescence. After such adjustments, this is usually referred to as depreciated replacement cost.

A30.05 The key steps in the replacement cost method are:

(a) calculate all of the *costs* that would be incurred by a typical participant seeking to create or obtain an *asset* providing equivalent utility,

(b) determine whether there is any depreciation related to physical, functional and external obsolescence associated with the subject *asset*, and

(c) deduct total depreciation from the total *costs* to arrive at a *value* for the subject *asset*.

A30.06 The replacement cost is generally that of a modern equivalent *asset*, which is one that provides similar function and equivalent utility as the subject *asset* being valued, but which is of a current design and constructed or made using current cost-effective materials and techniques.

A30.07 Reproduction Cost Method

A30.08 Reproduction cost is appropriate in circumstances such as the following:

(a) the *cost* of a modern equivalent *asset* is greater than the *cost* of recreating a replica of the subject *asset*, or

(b) the utility offered by the subject *asset* could only be provided by a replica rather than a modern equivalent.

A30.09 The key steps in the reproduction cost method are:

(a) calculate the sum of the *costs* that would be incurred by a typical participant seeking to create an exact replica of the subject *asset*,

(b) determine whether there is any depreciation related to physical, functional and external obsolescence associated with the subject *asset*, and

(c) deduct total depreciation from the total *costs* to arrive at a *value* for the subject *asset*.

A30.10 Summation Method

A30.11 The summation method, also referred to as the underlying asset method, is typically used for investment companies or other types of *assets* or entities for which *value* is primarily a factor of the *values* of their holdings.

A30.12 The key steps in the summation method are:

(a) value each of the component *assets* that are part of the subject *asset* using the appropriate *valuation approaches*, and

(b) add the *value* of the component *assets* together to reach the *value* of the subject *asset*.

A30.13 Cost Considerations

A30.14 The cost approach *should* capture all the *costs* that would be incurred by a typical participant.

A30.15 The *cost* elements may differ depending on the type of *asset* and *should* include the direct and indirect *costs* that would be required to replace/ recreate the *asset* as of the *valuation date*. Some common items to consider include, but are not limited to:

(a) direct *costs*:

(i) materials, and

(ii) labour

(b) indirect *costs*:

(i) transport *costs*

(ii) installation costs

(iii) professional fees (design, permit, architectural, legal, etc)

(iv) other fees (commissions, etc)

(v) overheads

(vi) taxes

(vii) finance *costs* (e.g., interest on debt financing), and

(viii) profit margin/to the creator of the *asset* (e.g., return to investors).

A30.16 An *asset* acquired from a third party would reflect the *costs* incurred by the seller to create the *asset* as well as some form of profit margin to provide a return on their investment. As such, under *bases of value* that assume a hypothetical transaction, it may be appropriate to include an assumed profit margin on certain *costs.*

A30.17 The assumed profit margin can be expressed as a target profit, either a lump sum or a percentage return on *cost* or *value*. However, financing *costs*, if included, may already reflect participants' required return on capital deployed, so the *valuer should* be cautious when including both profit margins and financing *costs*.

A30.18 When *costs* are derived from actual, quoted or estimated *prices* by third party suppliers or contractors, these *costs* will be generally assumed to include a third party's desired level of profit.

A30.19 The actual *costs* incurred in creating the subject *asset* (or a comparable reference *asset*) may be available and provide a relevant indicator of the *cost* of the *asset.* However, adjustments may need to be made to reflect the following:

(a) *cost* fluctuations between the date on which this *cost* was incurred and the *valuation date*, and

(b) any atypical or exceptional *costs*, or savings that are reflected in the cost data but that would not arise in creating an equivalent.

A30.20 Depreciation/Obsolescence

A30.21 In the context of the cost approach, "depreciation" refers to adjustments made to the estimated *cost* of creating an *asset* of equal utility to reflect the impact on *value* of any obsolescence affecting the subject *asset*. This meaning differs from the use of the word in financial reporting or tax law where it generally refers to a method for systematically expensing capital expenditure over time.

A30.22 Depreciation adjustments are normally considered for the following types of obsolescence, which may be further divided into sub-categories when making adjustments:

(a) physical obsolescence: any loss of utility due to the physical deterioration of the *asset* or its components resulting from its age and usage,

(b) functional obsolescence: any loss of utility resulting from inefficiencies in the subject *asset* compared with its replacement such as its design, specifications or technology being outdated,

(c) external or economic obsolescence: any loss of utility caused by economic or locational factors external to the *asset*. This type of obsolescence can be temporary or permanent.

A30.23 Depreciation/obsolescence *should* consider the physical and economic lives of the *asset*:

(a) The physical life is how long the *asset* could be used before it would be worn out or beyond economic repair, assuming routine maintenance but disregarding any potential for refurbishment or reconstruction,

(b) The economic life is how long it is anticipated that the *asset* could generate financial returns or provide a non-financial benefit in its current use. It will be influenced by the degree of functional or economic obsolescence to which the *asset* is exposed.

A30.24 Except for some types of economic or external obsolescence, most types of obsolescence are measured by making comparisons between the subject *asset* and the hypothetical *asset* on which the estimated replacement or reproduction cost is based. However, when market evidence of the effect of obsolescence on *value* is available, that evidence *should* be considered.

A30.25 Physical obsolescence can be measured in two different ways:

(a) curable physical obsolescence, i.e., the *cost* to fix/cure the obsolescence, or

(b) incurable physical obsolescence which considers the *asset*'s age, expected total and remaining life where the adjustment for physical obsolescence is equivalent to the proportion of the expected total life consumed. Total expected life may be expressed in any reasonable way, including expected life in years, mileage, units produced, etc.

A30.26 There are two forms of functional obsolescence:

(a) excess capital cost, which can be caused by changes in design, materials of construction, technology or manufacturing techniques resulting in the availability of modern equivalent *assets* with lower capital costs than the subject *asset*, and

(b) excess operating cost, which can be caused by improvements in design or excess capacity resulting in the availability of modern equivalent *assets* with lower operating costs than the subject *asset*.

A30.27 Economic obsolescence may arise when external factors affect an individual *asset* or all the *assets* employed in a *business* and *should* be deducted after physical deterioration and functional obsolescence. For real estate, examples of economic obsolescence include but are not limited to:

(a) adverse changes to demand for the products or services produced by the *asset*,

(b) oversupply in the market for the *asset*,

(c) a disruption or loss of a supply of labour or raw material,

(d) the *asset* being used by a *business* that cannot afford to pay a market rent for the *assets* and still generate a market rate of return, and

(e) adverse changes in the *environmental, social and governance* characteristics of the subject *asset*.

A30.28 Cash or cash equivalents do not suffer obsolescence and are not adjusted.

IVS 104 Data and Inputs

IVS 104 *Data* and *Inputs* address the selection and use of data to be used as *inputs* in the *valuation*. The aim of the *valuation* is to maximise the use of relevant and *observable data* to the degree that it is possible.

10. Introduction

10.01 Data and *inputs* are used in developing *values* for all types of *assets* and *liabilities*. *Inputs* are derived from data, along with assumptions and adjustments and are used in the quantitative development of a *value* conclusion.

10.02 Data and *inputs should* be based on factual information (such as measurements or published *prices*) but often include reasoning and analysis to arrive at an *input* to be used in the *valuation*.

10.03 The *valuation should* maximise the use of *observable data. Observable data* is defined as information that is readily available to market participants about actual events or transactions that are used in determining the *value* of the *asset* or *liability.*

10.04 The *valuer* is responsible for assessing and selecting the data, assumptions and adjustments to be used as *inputs* in the *valuation* based upon *professional judgement* and *professional scepticism.*

10.05 If the *valuer* uses AI and/or other technology-based tools and/or other technology-based tools and resources that employ opaque or non-transparent logic where the decision pathways and underlying rationale cannot be readily explained or verified in the collection of data and *inputs*, the *valuer* remains ultimately responsible for IVS Compliance. *(*see *IVS 101 Scope of work* para 20.02*)*

10.06 All data and *inputs*, including those generated by AI and/or other technology-based tools and/or other technology-based tools and resources that employ opaque or non-transparent logic where the decision pathways and underlying rationale cannot be readily explained or verified by the *valuer* during the *valuation, must* be subject to *quality controls*.

20. Use of a Specialist or Service Organisation

20.01 If the *valuer* does not possess all of the necessary data to perform all aspects of the *valuation*, it is acceptable for the *valuer* to engage a *specialist* or *service organisation*.

20.02 Prior to using a *specialist* or *service organisation*, the *valuer must* ensure that their capabilities meet the requirements of the *intended use* and *must* document their capabilities.

30. Use of Data provided by Management or the Client

30.01 The *valuer must* assess the reasonableness of data provided by management or the *client*.

30.02 If data provided by the management or the *client* includes performance projections, then the *valuer must* assess the historic record of fulfilling expectations and determine if an adjustment needs to be applied.

40. Characteristics of Relevant Data

40.01 The *valuer must* determine the data that is relevant, which for the purposes of this standard means appropriate for the *intended use* in terms of the *asset* and/ or *liability* being valued, the scope of work, the *valuation method* and the *valuation model*.

40.02 The *valuer must* apply *professional judgement* to balance the characteristics of relevant data listed below in order to choose the *inputs* used in the *valuation*. The characteristics of relevant data are:

(a) accurate: data are free from error and bias and reflect the characteristics that they are designed to measure,

(b) complete: set of data are sufficient to address attributes of the *assets* or *liabilities*,

(c) timely: data reflect the market conditions as of the *valuation date*,

(d) transparent: the source of the data can be traced from their origin.

40.03 In certain cases, the data may not incorporate all of these characteristics. Therefore, the valuer *must* assess data and conclude, based on *professional judgement*, that the data is relevant to value the *assets* and/or *liabilities* in accordance with the scope of work and the valuation method.

50. Input Selection

50.01 *Inputs must* be selected from relevant data in the context of the *asset* or *liability* being valued, the scope of work, the *valuation method*, and the *valuation model*.

50.02 *Inputs must* be sufficient for the *valuation models* being used to value the *asset* and/or *liability* based on the *valuer* using *professional judgement*.

50.03 When valuing portfolios or groups of similar *assets* or *liabilities*, *inputs should* be selected appropriately across those portfolios or groups of *assets*.

50.04 If *significant inputs* are inadequate or cannot be sufficiently justified, the *valuation* would not comply with IVS.

60. Data and Input Documentation

60.01 The source, selection and use of *significant* data and *inputs, professional judgement* made, and the *quality contro*l procedures followed including review and challenge, where applicable, *must* be explained, justified, and documented.

60.02 Documentation *must* be sufficient to enable the *valuer* applying *professional judgement* to understand why specific data was determined to be relevant and *inputs* were selected and were considered reasonable.

60.03 The form and location of documentation may vary based on the scope of work.

IVS 104 Data and Inputs: Appendix

The *valuer should* be aware of relevant legislation and frameworks in relation to sustainability considerations and *environmental, social and governance* factors impacting a *valuation*.

A10. Sustainability Considerations and Environmental, Social and Governance (ESG) Factors

A10.01 The impact of *significant sustainability* considerations and *ESG* factors *should* be considered in determining the *value* of an entity, *asset* or *liability*.

A10.02 *Sustainability* considerations and *ESG* factors may impact *valuations* both from a qualitative and quantitative perspective and may pose risks or opportunities that *should* be considered.

A10.03 Examples of environmental factors may include but are not limited to the following:

(a) air and water pollution,

(b) biodiversity,

(c) climate change (current and future risks),

(d) clean water and sanitation,

(e) carbon and other gas emissions,

(f) deforestation,

(g) natural disaster,

(h) resource scarcity or efficiency (e.g., energy, water and raw materials),

(i) waste management.

A10.04 Examples of social factors may include but are not limited to the following:

(a) community relations,

(b) conflict,

(c) customer satisfaction,

(d) data protection and privacy,

(e) development of human capital (health & education),

(f) employee engagement,

(g) gender equality and racial equality,

(h) good health and well-being,

(i) human rights,

(j) working conditions,

(k) working environment.

A10.05 Examples of governance factors may include but are not limited to the following:

(a) audit committee structure,

(b) board diversity and structure,

(c) bribery and corruption,

(d) corporate governance,

(e) donations,

(f) *ESG* reporting standards and regulatory *costs*,

(g) executive remuneration,

(h) institutional strength,

(i) management succession planning,

(j) partnerships,

(k) political lobbying,

(l) rule of law,

(m) transparency,

(n) whistle-blower schemes.

A10.06 *Sustainability* considerations and *ESG* factors and the *sustainability* and *ESG* regulatory environment *should* be considered in *valuations* to the extent that they are measurable and would be considered reasonable by the *valuer* applying *professional judgement.*

IVS 105 Valuation Models

IVS 105 *Valuation Models* addresses the selection and use of *valuation models* in the *valuation* process.

10. Introduction

10.01 A *valuation model* is a tool used for the quantitative implementation of a *valuation method* in whole or in part. A *valuation model* converts *inputs* into outputs used in the development of a *value*, whereas a *valuation method* is a specific technique to develop a *value*.

10.02 A *valuation model* may rely on other *valuation models* to derive its *inputs* or adjust its *output*.

10.03 *Valuation models must* be appropriate for the *intended use* of the *valuation* and consistent with *inputs*.

10.04 *Valuation models* can be developed internally or sourced externally from a *specialist* or *service organisation*.

10.05 *Valuation models* used *must* be tested to ensure the output is appropriate for the *intended use, basis of value* and the *assets* and/or *liabilities* being valued.

10.06 If the *valuation model* uses AI and/or other technology-based tools and resources that employ opaque or non-transparent logic, where the decision pathways and underlying rationale cannot be readily explained or verified, the *valuer* remains ultimately responsible for IVS Compliance. *(*see *IVS 101 Scope of work* para 20.02*)*

10.07 No *valuation model* can produce an IVS-compliant valuation without the application of the v*aluer's professional judgement* and *professional scepticism*.

10.08 All *valuation models*, including those generated by artificial intelligence or other technology-based tools and resources that employ opaque or non-transparent logic where the decision pathways and underlying rationale cannot be readily explained or verified by the *valuer* during the *valuation, must* be subject to *quality controls*.

10.09 In all cases the *valuer must* apply *professional judgement* and *professional scepticism* in the selection and use of *valuation models* and the application of *inputs* used in the *valuation model*.

20. Use of a Specialist or Service Organisation

20.01 If the *valuer* does not possess *valuation models* appropriate for all aspects of the *valuation*, it is acceptable for the *valuer* to engage a *specialist* or *service organisation* to provide a *valuation model*.

20.02 Prior to using a *specialist* or *service organisation*, the *valuer must* assess and document the capabilities and use of the *specialist* or *service provider*.

30. Characteristics of Appropriate Valuation Models

30.01 The *valuer must* determine that the *valuation model* is appropriate, for the *assets* or *liabilities* being valued, the scope of work and the *valuation method.* The *valuer must* apply *professional judgement* to balance the characteristics of a *valuation model* to choose an appropriate *valuation model*.

30.02 The characteristics of appropriate *valuation models* are shown below:

(a) accuracy: the *valuation model* is free from error and functions in a manner consistent with the objectives of the *valuation*,

(b) completeness: the *valuation model* addresses all the features of the *asset* and/or *liability* to determine *value*,

(c) timeliness: the *valuation model* reflects the market conditions as of the *valuation date*,

(d) transparency: all persons preparing and relying on the *valuation model must* understand how the *valuation model* works and its inherent limitations.

30.03 In certain cases, the *valuation model* may not incorporate all of these characteristics. Therefore, the *valuer must* assess and conclude that the valuation model is appropriate to value the *assets* or *liabilities* in accordance with the scope of work and the *valuation method*.

40. Valuation Model Selection and Use

40.01 The *valuation model must* be selected in the context of the *intended use*, *valuation approach* and the *asset* and/or *liability* being valued.

40.02 Regardless of whether the *valuation model* is developed internally or sourced externally, the *valuer must* assess the *valuation model* to determine that the *valuation model* is appropriate for its *intended use.*

40.03 The *valuer must* understand the way the *valuation model* operates.

40.04 The *valuation model should* be tested for functionality and outputs *must* be analysed for accuracy. Any *significant* limitations of the models *should* be identified, along with any potentially *significant* adjustments.

40.05 *Valuation models* used over time *must* be maintained, monitored, assessed, and adjusted to ensure that they remain appropriate, accurate, transparent and complete.

40.06 If *significant* limitations have been identified or adjustments required then these *must* be explained, justified, and documented.

40.07 If *significant* limitations or adjustments cannot be sufficiently justified, the *valuation* would not comply with IVS.

50. Valuation Model Documentation

50.01 The *valuation model* used *should* have documentation that includes the following information:

(a) support for the selection or creation of the *valuation model*,

(b) description of the *inputs* and outputs,

(c) *significant inputs*,

(d) limitations, and

(e) *quality control* procedures and results.

50.02 Documentation should be sufficient to describe why the *valuation model(s)* were selected and considered by the *valuer* applying *professional judgement*.

IVS 106 Documentation and Reporting

Valuation reports and documentation are a critical and defining feature of IVS, which collectively assist in creating consistency, professionalism, transparency, comparability, and trust in *valuation* to serve the public interest.

10. Introduction

10.01 An IVS-compliant *valuation must* have sufficient documentation and reporting to describe and provide transparency to the *intended user* on the *valuation approach(es)*, *valuation methods*, *inputs*, *valuation models*, *professional judgement*, and resultant *value(s)*.

10.02 The results of a *valuation* or *valuation review must* be documented and reported in writing and may include paper, electronic files, or other forms of recorded media.

10.03 Documentation and reporting requirements apply regardless of whether the *valuer* is employed by the *client* or externally engaged by the *client*.

10.04 Documentation *must* be maintained throughout the *valuation* and *must* describe the *valuation* and the basis of conclusions made. The level of documentation *must* at a minimum meet the requirements contained in section 20 of this standard.

10.05 Reporting *must* be provided to the *client* in writing (see para 10.02 of this standard). The level of reporting *must* at a minimum meet the requirements contained in section 30 of this standard.

20. Documentation

20.01 Documentation is the written record of the *valuation* or *valuation review* and may include communications with the *client*, working papers, or both, used to support the conclusions reached and compliance with IVS.

20.02 Documentation *must* be maintained to describe the *valuation* or *valuation review* and *must* be sufficient to describe the conclusion reached by the *valuer*.

20.03 Further to the requirements of 20.02, documentation *must* also include any *significant* use and *quality controls* for artificial intelligence or other technology-based tools and resources.

20.04 Documentation *must* be adequate to allow a *valuer* applying *professional judgement* and *professional scepticism* to understand the scope of the *valuation*, the work performed, and the conclusions reached.

20.05 In some cases, all documentation is included in the *valuation* report or *valuation review* report. In other cases, depending on the agreed scope of work, additional documentation *must* be maintained.

20.06 Documentation *should* include but is not limited to communications with the *client*, alternative methods explored, additional data and *inputs* considered, risks and biases addressed, *professional judgement* applied, and the *quality control* procedures followed including review and challenge, where applicable.

20.07 In all cases, documentation *should* describe the *valuation* or *valuation review* and how the *valuer* minimised *valuation risk* to ensure the *valuation* is in accordance with IVS.

20.08 The *valuer must* keep a copy of any report issued on the *value* and a record of the *valuation* work performed for a period in accordance with legal, regulatory, authoritative or contractual requirements relative to the *intended use*.

30. Valuation Reports

30.01 Valuation reports *must* provide, in sufficient detail, a clear and well-structured description of the basis for the conclusion of *value*.

30.02 Valuation reports may reference other documents. These documents may include but are not limited to scope of work, internal policies, and procedures.

30.03 Valuation reports *should* include all information necessary to provide the *client* with a clear description of the scope of work, the work performed, *professional judgements* made and the basis for conclusions reached.

30.04 The format of the valuation reports may range from comprehensive narrative reports to abbreviated summary reports.

30.05 Standing engagements that require frequent or repeated *valuations* may provide updates to an existing IVS-compliant report providing it is agreed upon in the scope of work.

30.06 Valuation reports *must* convey the following, at a minimum:

(a) agreed scope of the work,

(b) *assets* and/or *liabilities* being valued,

(c) the identity of the *valuer,*

(d) *client*,

(e) *intended use*,

(f) *intended users*, if applicable,

(g) *valuation* currency(ies) used,

(h) *valuation date(s)*,

(i) *basis/es of value* adopted,

(j) the *valuation approach(es)* adopted,

(k) *valuation method(s)* or *valuation model(s)* applied,

(l) sources and selection of *significant* data and *inputs* used,

(m) *significant sustainability considerations and environmental, social and governance* factors used and considered,

(n) the *significant* use of artificial intelligence or other technology-based tools and resources.

(o) *significant* or special assumptions, and/or limiting conditions,

(p) findings of a *specialist* or *service organisation*,

(q) the IVS Asset Standards used within the *valuation*.

(r) *value* and rationale for *valuation*,

(s) IVS compliance statement,

(t) the date of the report (which may differ from the *valuation date*).

30.07 In all instances the valuation report *must* be sufficient to describe the conclusion reached and be considered reasonable by the *valuer* applying *professional judgement*.

30.08 When a value range is used, the *valuer must*:

(a) Disclose the purpose of the range and what it communicates to the *intended user*,

(b) Disclose how the boundaries of the range are derived,

(c) Disclose how the point estimate within a range is derived (where applicable).

30.09 If the *valuer* concludes that a limitation or restriction will impact compliance with IVS, the *valuer must* not state that the report is compliant with IVS.

40. Allocation of Value

40.01 Allocation of *value* is the separate apportionment of *value* of an *asset* on an individual or component basis.

40.02 When apportioning *value*, the allocation method *must* be consistent with the applicable premise and *basis(es) of value*. The *valuer must*:

(a) follow any applicable legal or regulatory requirements,

(b) set out a clear description of the *intended use* of the allocation,

(c) consider the facts and circumstances, such as the relevant characteristic(s) of the item(s) being apportioned,

(d) adopt appropriate methodology(ies) in the circumstances.

50. Valuation Review Reports

50.01 A *valuation review* is not a *valuation*. A *valuation review must* state whether the review is a *valuation process review* or a *value review* or both:

(a) a *valuation process review* addresses compliance with IVS,

(b) a *value review* addresses the reasonableness of a *value*.

50.02 If a *value* is provided as part of the *value review*, then this is a *valuation* (see section 30 of this standard).

50.03 A *valuation review must* convey the following, at a minimum:

(a) agreed scope of the *valuation review*,

(b) *assets* and/or *liabilities* reviewed,

(c) the identity of the *valuation reviewer*,

(d) the identity of the *client*,

(e) *intended use*,

(f) *intended users,* if applicable,

(g) *significant* or special assumptions and/or limiting conditions pertaining to the *valuation* reviewed,

(h) the use of a *specialist* or *service organisation* if used, as part of the *valuation review*,

(i) procedures undertaken and the documentation reviewed,

(j) the *valuation reviewer's* conclusions about the work under review, including supporting reasons, and

(k) the subject of the review,

(l) the date of the *valuation review* report,

(m) the version of IVS that is applicable to the review.

50.04 In all instances, the *valuation review* report *must* be sufficient to describe the conclusion reached and be considered reasonable by the *valuer* applying *professional judgement*.

IVS 107 Quality Controls

Quality controls **are processes and procedures used to mitigate** ***valuation risk*** **to ensure the** ***valuation*** **is in accordance with IVS and appropriate for its** ***intended use*****.**

Quality controls **include things like math and logic checks, reviews of the appropriateness of** ***valuation approaches*****,** ***valuation models*****,** ***inputs*** **and assumptions, and any other** ***significant*** **areas of** ***professional judgment*** **in a** ***valuation*****. These review procedures are performed in conjunction with the** ***valuation*****, applied throughout the** ***valuation*****, and completed prior to report delivery.**

Quality controls **contemplated in IVS 107 and conducted during the** ***valuation*** **differ from** ***valuation reviews*****, which are undertaken after the issuance of a** ***valuation*** **report by a third party.** ***(see IVS 106 Documentation and Reporting section 40)***

10. Introduction

10.01 *Quality controls must* be designed, implemented and executed to ensure that *the valuation* is IVS compliant.

10.02 *Quality controls must* cover all *significant* steps within the valuation process as outlined in IVS 100 to IVS 106 and in the Asset Standards, as appropriate.

10.03 *Quality controls must* be in place to mitigate *valuation risk* for the *intended use* to ensure that the *valuation* conclusion is appropriate for the *intended use*.

10.04 *Quality controls* apply to the operational steps of the *valuation*, as well as the *professional judgements, professional scepticism* and assumptions that underpin the *valuation* conclusion.

10.05 *Quality controls must* include an appropriate level of review and challenge and *must* be performed in an objective, unbiased and competent manner.

10.06 *Quality controls must* be completed prior to the *valuation* report being issued.

20 Implementation

20.01 *Quality controls* may be manual, automated, or hybrid and in all instances *must* incorporate *professional judgement* and *professional scepticism* to ensure they are effective.

20.02 *Quality controls must* be regularly reviewed to ensure they remain effective as of the *valuation date.*

20.03 *Quality controls must* be appropriate for the *intended use*, *intended users*, the characteristics of the *asset* or *liability* being valued and the degree of *valuation risk* present in the engagement.

20.04 Quality controls *must* be documented and *must* contain sufficient detail to be understood by a *valuer applying professional judgement* and *professional scepticism* to understand *the quality control* procedures performed.

20.05 The extent of the *quality controls* and supporting documentation *must* be appropriate for the specific *valuation*, taking into account the complexity of the *valuation* and other relevant risk factors including, but not limited to, market or *asset* or *liability* specific factors.

20.06 *Quality control* procedures and supporting documentation*, must* therefore be more extensive for engagements having a higher degree of *valuation risk*.

Asset Standards

IVS 200 Businesses and Business Interests

10 Overview

10.01 The principles contained in the General Standards apply to *valuation*s of *businesses* and business interests.

10.02 This standard contains additional requirements that apply to *valuation*s of *businesses* and business interests.

20. Introduction

20.01 The definition of a *business* may differ depending on the intended use of a *valuation*.

20.02 A *business* is an organisation or integrated collection of *assets* and/or *liabilities* engaged in commercial, industrial, service or investment activity.

20.03 Generally, a *business* includes several *assets* working together to generate economic activity that differs from the outputs generated by the individual *assets* and/or *liabilities* deployed on their own.

20.04 Individual *intangible assets*, or a group of *intangible assets*, might not constitute a *business* but would nonetheless be within the scope of this standard if such *assets* jointly generate economic activity that differs from the outputs generated by the individual *assets* on their own. If the *assets* do not meet this criterion the *valuer should* defer to IVS 210 *Intangible Assets* or IVS 220 *Non-Financial Liabilities*.

20.05 The commercial, industrial, service or investment activity of the *business* may result in greater *value* than those *assets* and/ or *liabilities* generate separately. The excess *value* is often referred to as goodwill. The absence of goodwill does not automatically imply that the *asset* or group of *assets* does not constitute a *business*.

20.06 Substantially all the *value* of *assets* and/or *liabilities* within a *business* may reside in a single *asset*.

20.07 *Businesses* can take many legal forms, including but not limited to corporations, partnerships, joint ventures and sole proprietorships. *Businesses* can also include subsets or specific *business* activities of an entity, such as a division, a branch, or a segment.

20.08 Depending on the nature of the *business* interest valued, the *valuer should* apply other standards.

20.09 *Valuation*s of *businesses* are performed for different *intended uses* including but not limited to acquisitions, mergers and sales of *businesses*, taxation, litigation, insolvency proceedings, and financial reporting. Business valuations may also be needed as an *input* or step in other *valuations* such as the *valuation* of stock options.

30. Valuation Framework

30.01 In accordance with IVS 100 *Valuation Framework*, the *valuer must* comply with the *valuer* principles (see IVS100 Valuation Framework, section 10).

40. Scope of Work

40.01 The *valuer must* comply with the requirements of *valuation* IVS 101 *Scope of Work* when valuing a *business* or a business interest.

40.02 The *valuer must* establish and consider:

(a) whether the subject *asset* is an entire *business* or a part thereof, commonly understood as a business interest, and

(b) whether the subject *asset* is a controlling or non-controlling interest, and

(c) the proportion of the interest valued and its related impact on the *valuation*.

40.03 The *valuer must* specify and define the *business* or business interest being valued. This includes but is not limited to:

(a) enterprise *value*: often described as the total *value* of the equity in a *business* plus the *value* of its debt or debt-related *liabilities*, minus any cash or cash equivalents available to meet those *liabilities*,

(b) total invested capital *value*: often described as the total amount of money currently invested in a *business*, regardless of the source, often reflected as the *value* of total *assets* less current *liabilities*,

(c) operating *value*: often described as the total *value* of the operations of the *business*, excluding the *value* of any non-operating *assets* and *liabilities*, and

(d) equity value: often described as the *value* of a *business* to all its equity shareholders.

50. Bases of Value

50.01 In accordance with IVS 102 *Bases of Value*, the *valuer must* select the appropriate *basis(es) of value* when valuing a *business* or business interest.

50.02 V*aluations* of *businesses* and business interests can be performed using *bases of value* defined by entities/organisations other than the IVSC. Some examples of these *bases of value* are mentioned in IVS 102 *Bases of Value*.

50.03 The *valuer must* understand and follow the legislation, regulation, case law and other interpretative guidance related to those *bases of value* effective at the *valuation date*.

60. Valuation Approaches and Methods

60.01 The three principal *valuation approaches* described in IVS 103 *Valuation Approaches* may be applied to the *valuation* of *businesses* and business interests.

60.02 When selecting a *valuation approach* and *valuation method*, in addition to the requirements of this standard, the *valuer must* follow the requirements of IVS 103 *Valuation Approaches*, including para 10.04.

70. Market Approach

70.01 The market approach is frequently applied in the *valuation* of *businesses* and business interests as these *assets* and/or *liabilities* often meet the criteria in IVS 103 *Valuation Approaches,* paras 20.02 and 20.03.

70.02 When valuing *businesses* and business interests under the market approach, the *valuer must* follow the requirements of IVS 103 *Valuation Approaches*, including but not limited to sections 20 (Market Approach) and Appendix A10 (Market Approach Methods), and, where applicable, Calibration, section 170 below.

70.03 When using the market approach, the *valuer must* consider the most common sources of data used as *inputs* to the *valuation*. These sources include:

(a) public markets in which ownership of similar *businesses* or business interests are traded,

(b) the acquisition market in which entire *businesses* or controlling interests in *businesses* are bought and sold, and

(c) prior transactions or offers for the ownership of the subject *business* or business interest.

70.04 There *must* be a reasonable basis for comparison with, and reliance upon, similar *businesses* in the market approach.

70.05 The *valuer must* consider whether a reasonable basis for comparison between the subject *asset* and the comparable *assets* exists. These factors include but are not limited to

(a) similarity to the subject *business* in terms of qualitative and quantitative characteristics,

(b) amount and verifiability of *data* on the similar *business*, and

(c) whether the *price* of the similar *business* represents a transaction consistent with the applicable *basis of value*.

70.06 The *valuer must* follow the requirements of IVS 103 *Valuation Approaches* Appendix A10.08–A10.10 when selecting and adjusting comparable transactions.

70.07 The *valuer must* follow the requirements of IVS 103 *Valuation Approaches*, Appendix A10.15–A10.17 when selecting and adjusting comparable public company information.

80. Income Approach

80.01 The income approach is commonly applied in the *valuation* of *businesses* and business interests as these *assets* and/or *liabilities* often meet the criteria in IVS 103 *Valuation Approaches*, paras 30.02 and 30.03.

80.02 When valuing *businesses* and business interests under the income approach the *valuer must* follow the requirements of IVS 103 *Valuation Approaches*, and, where applicable, *Calibration*, para 170 below.

80.03 Income and cash flow related to a *business* or business interest can be measured in several ways and are-determined either on a pre-tax or a post- tax basis. The *valuer must* apply a capitalisation or *discount rate* consistent with the type of income or cash flow used.

80.04 The type of income or cash flow used under the income approach *must* be consistent with the type of *business* or business interest being valued. Examples of this requirement include but are not limited to:

(a) enterprise value: usually derived using cash flows before debt servicing *costs* and an appropriate *discount rate* applicable to enterprise-level cash flows, such as a *weighted*-average cost of capital, and

(b) equity value: usually derived using cash flows to equity after debt servicing *costs*, and an appropriate *discount rate* applicable to equity- level cash flows, such as a *cost* of equity.

80.05 When using the income approach, the *valuer must*:

(a) Select an appropriate measure of income and estimate a capitalisation rate, or

(b) Estimate cash flows and a *discount rate* when discounting cash flows.

80.06 In estimating the appropriate capitalisation rate, the *valuer should* consider factors including but not limited to the level of interest rates, rates of return expected by participants for similar investments and the risk inherent in the anticipated benefit stream.

80.07 In applying methods based on the capitalisation of income, the *valuer must* consider expected growth when determining the capitalisation rate.

80.08 In applying methods based on the discounting of cash flows, the *valuer must* consider expected growth in the in the forecasted income or cash flow.

80.09 The *valuer must* use a *discount rate* consistent with the expression of forecasted cash flows in either nominal or real terms.

80.10 The *valuer must* use appropriate methods to assess *business* operations and financial projections. These methods include but are not limited to financial ratios analysis, trend analysis, and benchmarking.

80.11 When historical financial results are used as a basis for determining future income or cash flows, the *valuer must* make appropriate adjustments to reflect differences between the actual historical cash flows and those that would be experienced prospectively at the *valuation date*. The adjustments *must* be consistent with the applicable *basis of value*. Examples of such adjustments include but are not limited to:

(a) adjusting revenues and expenses to levels that are reasonably representative of expected continuing operations,

(b) presenting financial data of the subject *business* and comparable *businesses* on a consistent basis,

(c) adjusting or disregarding transactions not executed on an arm's length basis (such as contracts with customers or suppliers) to market rates,

(d) adjusting the cost of labour or of items leased or otherwise contracted from related parties to reflect *price*s or rates,

(e) reflecting the impact of non-recurring events from historical revenue and expense items, and

(f) adjusting the accounting of inventory to accurately reflect economic reality or to allow a comparison with similar *businesses.*

80.12 The *valuer must* adjust the *valuation* for other items not captured in either the cash flow forecasts or the *discount rate* adopted. The *valuer must* disclose and document the rationale for those adjustments. Examples of such adjustments include but are not limited to adjustments for the lack of marketability of the interest being valued or adjustments reflecting whether the business interest being valued is a controlling interest or non-controlling interest.

80.13 The *valuer must* ensure that adjustments to the *valuation* do not reflect factors previously included in the cash flows or the *discount rate*. For example, forecasted cash flows may already reflect that the interest being valued is a controlling or non-controlling interest in the *business*.

80.14 When a *valuation* includes *significant* uncertainty as to the amount and/or timing of future cash flows, the *valuer must* consider employing multi-scenario or simulation-based methods.

90. Cost Approach

90.01 The cost approach is rarely applied in the *valuation* of *businesses* and business interests as these *assets* and/or *liabilities* seldom meet the criteria in IVS 103 *Valuation Approaches*, paras 40.02 and 40.03.

90.02 The *valuer must* consider applying the cost approach in the *valuation* of *businesses* or business interests when the subject *asset* is:

(a) an early stage or start-up *business* where profits and/or cash flow cannot be reliably determined and comparisons with other *businesses* under the market approach are impractical or unreliable,

(b) an investment or holding *business*, in which case the summation method described in IVS 103 *Valuation Approaches*, Appendix A30.10–A30.12 *should* be applied, and/or

(c) not a going concern and the *value* of *assets* net of *liabilities* might be the most appropriate estimate of the *value* of the *business*.

90.03 When valuing *businesses* and business interests under the Cost Approach the *valuer must* follow the requirements of IVS 103 *Valuation Approaches*, including but not limited to sections 40 (Cost Approach) and Appendix A30 (Cost Approach Methods).

100. Data and Inputs

100.01 In accordance with IVS 104 *Data and Inputs*, the *valuer must* maximise the use of relevant and *observable data*.

100.02 In accordance with IVS 104 Data and Inputs: Appendix, the *valuer should* consider *significant sustainability* considerations and *ESG* factors in determining the *value* of *businesses* and business interests.

100.03 The *valuation* of a *business* entity or interest frequently requires reliance upon information received from management, representatives of the management or other experts.

100.04 The *valuer must* assess the reasonableness of information received from management, representatives of management or other experts and evaluate whether it is appropriate to rely on that information for the *valuation* (See IVS 104.30 on *Usage of Data provided by Management or the Client*). For example, prospective financial information provided by management may reflect specific synergies that may be inconsistent with the requirements of the *valuation*.

100.05 The history of a *business*, where available, provides useful guidance to set expectations for the future. The *valuer should* consider the *business*' historical financial statements over an appropriately long period as an *input* to a *valuation*.

100.06 Where the future performance of the *business* is expected to deviate *significantly* from historical experience, the *valuer must* understand why historical performance is not predictive of the *business*' future performance.

100.07 The *valuer must* consider relevant political circumstances, economic developments and industry trends. The *value* of a *business*, business interest or *asset* may be impacted by economic and industry- specific factors related to:

(a) the registered location of the *business* headquarters and legal form of the *business*,

(b) the nature of the *business* operations and where each aspect of the *business* is conducted (i.e., manufacturing may be done in a different location to where research and development is conducted),

(c) where the *business* sells its goods and/or services,

(d) the currency or currencies the *business* uses,

(e) where the suppliers of the *business* are located,

(f) the tax and legal *jurisdictions* the *business* operates in,

(g) political outlook and government policy,

(h) exchange rates, inflation, interest rates, and

(i) market activity

110. Valuation models

110.01 In accordance with IVS 105 *Valuation Models*, the *valuer must* maximise the characteristics of appropriate *valuation models*.

110.02 *Valuation models must* be suitable for the *intended use* of the *valuation* and consistent with appropriate *inputs*.

120. Documentation and Reporting

120.01 When valuing a *business* or a business interest, the *valuer must* comply with the requirements of *valuation* IVS 106 *Documentation and Reporting.*

130. Special Considerations for Businesses and Business Interests

130.01 The following sections address a non-exhaustive list of topics relevant to the *valuation* of *businesses* and business interests:

(a) Ownership Rights (section 140),

(b) Operating and Non-Operating Assets (section 150),

(c) Capital Structure Considerations (section 160).

(d) Calibration (Section 170)

140. Ownership Rights

140.01 Ownership rights are usually defined within a *jurisdiction* by legal documents such as articles of association, clauses in the memorandum of the *business*, articles of incorporation, bylaws, partnership agreements and shareholder agreements. These documents are collectively known as “corporate documents”. The *valuer must* consider the rights, privileges or conditions attached to the subject *asset*.

140.02 If required by the circumstances or scope of work of the *valuation*, the *valuer must* distinguish between legal and beneficial ownership of a *business* interest.

140.03 Corporate documents may contain restrictions on the transfer of an interest and/or other provisions relevant to *value*. For example, corporate documents may stipulate that the interest *should* be valued as a pro rata fraction of the entire issued share capital regardless of whether it is a controlling or non-controlling interest. The *valuer must* consider the rights of the *business*, business interest or *asset* being valued and the rights attendant to other, related classes of interest.

140.04 The *valuer must* distinguish between rights and obligations inherent to the subject *asset* and those that may be applicable only to a specific shareholder. For example, an agreement between current shareholders may not apply to a potential buyer of the ownership interest. The scope of work may require the *valuer* to consider:

(a) only the rights and obligations inherent to the subject interest or

(b) both those rights and obligations inherent to the subject interest and those that apply to a specific owner.

140.05 The *valuer must* consider the rights and preferences associated with a subject *asset*. These include but are not limited to:

(a) Where multiple classes of equity and/or hybrid securities exist, the *valuer must* consider the respective rights and preferences of each class, including, but not limited to:

(i) liquidation preferences,

(ii) voting rights,

(iii) redemption, conversion and participation provisions, and

(iv) put and/or call rights.

(b) Where a controlling interest in a *business* may have a higher *value* than a non-controlling interest. If appropriate for the scope of work of the *valuation*, the *valuer must* consider applying control premiums or discounts for lack of control.

140.06 When evaluating premiums paid in comparable transactions, the *valuer must* consider whether the synergies and other factors that justified those premiums are applicable to the subject *asset*.

150. Operating and Non-Operating Assets

150.01 The scope of work of the *valuation* may specify the *valuation* of operating *assets*, of certain or all non-operating *assets*, or of a combination of both operating *assets* and non-operating *assets*. The *valuer must* identify the *assets* specified in the scope of work and distinguish between operating *assets* used in the conduct of the *business* operations, and non-operating *assets*.

150.02 If specified by the scope of work, the *valuer must* separately determine and add the *value* of non-operating *assets* and/or *liabilities* to the *value* of the operating *assets* to determine the *value* of a *business*, a business interest or a subject *asset*.

150.03 When separately considering non-operating *assets* and *liabilities*, the *valuer should* ensure that the income and expenses associated with non-operating *assets* and/or *liabilities* are excluded from the cash flow measurements and projections used in the *valuation* of the operating *business*. For example, if a *business* has a *significant liability* associated with an underfunded pension and that *liability* is valued separately, the cash flows used in the *valuation* of the *business should* exclude any expected "catch-up" payments related to that *liability*.

150.04 The *valuer must* consider whether a *business* has unrecorded *assets* and/or *liabilities* that are not reflected on the balance sheet. Examples of such *assets* and/or *liabilities* include *intangible assets*, fully depreciated machinery and equipment, and legal liabilities. The *valuer must* consider whether these unrecorded *assets* and/or *liabilities* form part of the operating *business* or are non-operating *assets* and/or *liabilities* and whether they fall within the scope of work of the *valuation.*

150.05 If the *valuation* includes data from publicly traded *businesses*, the *valuer should* adjust the *valuation* to exclude the impact of the *value*, income and expenses associated with non-operating *assets* and/ or *liabilities*.

160. Capital Structure Considerations

160.01 *Businesses* are often financed through a combination of debt and equity. The *valuer* can be asked to value only equity, or a specific class of equity, or some other form of ownership interest. Equity, or a specific class of equity can be valued directly. However, the enterprise value of the *business* is usually determined before allocating *value* between the various classes of debt and equity.

160.02 The list of interests that can be valued includes, but is not limited to:

(a) bonds,

(b) convertible debt,

(c) partnership interest,

(d) non-controlling interest,

(e) common equity,

(f) preferred equity,

(g) options,

(h) warrants.

160.03 Rights and preferences can broadly be categorised as economic rights or control rights. The *valuer must* consider those rights and preferences, including:

(a) dividend or preferred dividend rights,

(b) liquidation preferences,

(c) voting rights,

(d) redemption rights,

(e) conversion rights,

(f) participation rights,

(g) anti-dilution rights,

(h) registration rights, and

(i) put and/or call rights.

160.04 A simple capital structure includes only common stock and simple debt structures such as bonds, loans, and overdrafts. To value the common stock of the *business*, the *valuer should* estimate the *value* of debt, subtract that value from the enterprise value, and allocate the residual equity value pro rata to the common stock. The *valuer must* assess consider whether this method is appropriate in the case of a distressed or highly leveraged companies.

160.05 A complex capital structure includes one or several forms of equity other than just common stock. The *valuer should* use a reasonable method to determine the value of equity or specific class(es) of equity. In such cases, the *valuer should* estimate the enterprise value of the *business* and allocate it between the classes of debt and equity. The *valuer should* determine how each class of equity participates in distributions from a sale or any other liquidity event and the implications of such events on the *valuation* of each class of equity.

160.06 When valuing an entity with a complex capital structure, the *valuer should* consider any potential differences between a "pre-money" and "post-money" *valuation*. For example, an infusion of cash (ie, "post- money *valuation*") may impact the overall risk profile of an early-stage company as well as the allocation of *value* between classes of equity.

160.07 When valuing an entity with a complex capital structure, the *valuer should* consider recent transactions in the entity's equity or a specific class of equity, and ensure the assumptions used in the subject *valuation* are updated as necessary to reflect changes in the investment structure and changes in market conditions

160.08 This section examines three methods:

(a) current value method (CVM),

(b) option pricing method (OPM), and

(c) Scenario based methods, including the probability-weighted expected return method (PWERM) and the Hybrid method.

160.09 While the CVM is not forward looking, both the OPM and scenario-based methods estimate *values* assuming various future outcomes. Scenario-based methods rely on discrete assumptions for future events.

160.10 ***Current Value Method (CVM)***

160.11 The current value method (CVM) allocates the enterprise value to the various debt and equity securities assuming an immediate sale of the enterprise. The CVM is not forward looking. It does not consider possible option-like payoffs of certain share classes.

160.12 When applying the CVM, the *valuer must* perform the following steps:

(a) Estimate the enterprise value of the entity. The *valuer should* consider if the enterprise value includes or excludes cash.

(b) Deduct the obligations to debt holders, or debt equivalent securities from the enterprise value,

(c) Allocate the *value* to the various series of preferred stock based on their liquidation preferences or conversion terms, and

(d) Allocate any residual value to common equity, and related options and warrants.

160.13 The CVM *should* be used when:

(a) a liquidity event of the enterprise is imminent, or

(b) when an enterprise is at such an early stage of its development that no *significant* common equity value above the liquidation preference on any preferred equity has been created, or

(c) no material progress has been made in the execution of the *business* plan, or

(d) no reasonable basis exists for estimating the amount and timing of any *value* above the liquidation preference that might be created in the future.

160.14 The *valuer must* not assume that the *value* of debt, or of debt-like securities are equal to their book value.

160.15 ***Option Pricing Method (OPM)***

160.16 The OPM values the different share classes by treating each share class as an option on the cash flows from the enterprise. The OPM is often applied to capital structures in which the payout to different share classes changes at different levels of total equity value.

160.17 The *valuer should* perform the OPM either:

(a) on the enterprise value, thereby including any debt in the OPM, or

(b) on an equity basis after separate consideration of the debt.

160.18 The OPM considers the various terms of the stockholder agreements that would affect the distributions to each class of equity upon a liquidity event, including the level of seniority among the securities, dividend policy, conversion ratios and cash allocations.

160.19 The OPM estimates the future distribution of outcomes using a lognormal distribution around the current *value*.

160.20 The starting point for the OPM is the *value* of total equity for the *business*. The OPM is then applied to allocate the total equity value among equity securities.

160.21 The *valuer should* select the OPM (or a related hybrid method) in circumstances where specific future liquidity events are difficult to forecast or the *business* is in an early stage of development.

160.22 The OPM most frequently relies on the Black-Scholes option pricing model to determine the *value* associated with distributions above certain value thresholds. However, in more complex capital structures, alternative techniques, such as the Monte Carlo simulation, may be justified.

160.23 When applying the OPM, the *valuer must:*

(a) determine the total equity value of the *business*,

(b) identify the liquidation preferences, preferred dividend accruals, conversion *prices*, and other features attached to the relevant securities that influence the cash distribution,

(c) determine the different total equity value points (breakpoints) in which the liquidation preferences and conversion *prices* become effective,

(d) Select an option pricing model,

(e) determine the *inputs* to the-option pricing model,

(f) calculate a *value* for the various call options and determine the *value* allocated to each interval between the breakpoints,

(g) determine the relative allocation to each class of shares in each interval between the calculated breakpoints,

(h) allocate the *value* between the breakpoints (calculated as the call options) among the share classes based on the allocation determined in step (g) and the *value* determined in step (f) above,

(i) consider additional adjustments to the share classes as necessary, consistent with the *basis of value*. For example, it may be appropriate to apply discounts or premiums.

160.24 When determining the appropriate volatility assumption, the *valuer must* consider:

(a) the development stage of the *asset* and the relative impact to the volatility when compared with that observed by the comparable companies, and

(b) the relative financial leverage of the *asset*.

160.25 The *valuer should* use the OPM to back solve for the *value* of total equity value when there is a known *price* for an individual security. The *inputs* to a back solve analysis are the same as above. The *valuer should* then solve for the *price* of the known security by iterating the *value* of total equity. The back solving method also provides a *value* for all other equity securities.

160.26 ***Scenario Based Methods (SBM)***

160.27 Scenario-based methods consider the payoff of each class of equity across multiple exit scenarios, discounted to the *valuation date.* Scenario-based methods require forward-looking analysis of potential future outcomes available to the subject *business*.

160.28 Under a full scenario analysis, the *valuer must* estimate present values of future scenarios under each outcome and apply a probability factor to each scenario as of the *valuation date*.

160.29 In some circumstances, the *valuer* may not be able to reasonably estimate all potential scenarios. In such cases, the *valuer should* consider the hybrid method as an alternative to explicitly modelling all scenario outcomes.

160.30 In considering the hybrid method, the *valuer must* consider the complexity of the method and assess its relative advantages and disadvantages.

160.31 In applying the hybrid method, the *valuer should* estimate the probability-weighted value across multiple scenarios while also using the OPM to allocate *value* within the remaining scenarios.

160.32 The *valuer should* assess the required rate of return for other classes of equity, considering the relative risk of each class.

170. Calibration

170.01 Calibration is the process of aligning implied metrics of observed transactions to *valuations* at subsequent *valuation dates*. The implied metrics and characteristics of the initial reference transaction are compared and benchmarked to similar *assets* as of the transaction date. On subsequent *valuation dates*, the initial calibration metrics are updated to reflect changes in the relevant market *inputs*, the performance of the subject *asset*, and other suitable characteristics.

170.02 The *valuer must* determine that that the initial reference transaction complies with the requirements of the *basis of value*. For example, in the context of financial reporting, the transaction *must* be an orderly transaction between market participants on the *valuation date*.

170.03 The *valuer must* observe the relevant metrics and characteristics of the initial reference transaction and benchmark those to similar *assets*.

170.04 At subsequent *valuation dates*, the *valuer must* review and consider updating *input* assumptions to reflect changes in:

(a) *business* conditions

(b) the subject *asset*'s operating performance, and

(c) market conditions.

170.05 When using the market approach, the *valuer must* consider the range of observable multiples and the differences between the subject *asset* and the selected guideline companies or transactions. The *valuer must* assess whether these differences indicate that a higher or lower multiple is appropriate. The *valuer must* adjust these initial multiples to account for changes between the transaction date and the *valuation date*.

170.06 When using the income approach and specifically the DCF method, the *valuer must*:

(a) deconstruct the *discount rate* implied at acquisition into its component parts, and compare them to similar *assets* to isolate any differences

(b) update the components of the *discount rate* at future *valuation dates* after adjusting for the subject *asset*'s operating performance and market changes, and

(c) apply the recalculated *discount rate* to the projected future cash flows.

170.07 The *valuer must* test the consistency of the unobservable assumptions with the transaction *price* at the transaction date and the evolution of those assumptions up to the *valuation date*. The *valuer should* determine if changes in the facts and circumstances invalidate those assumptions.

170.08 If additional relevant transactions in the subject *asset* have occurred at dates subsequent to the initial transaction date, the *valuer must* calibrate the *valuation* to those more recent transactions.

170.09 The *valuer must* determine that the evolution in the *valuation* between *valuation dates* is reasonable, even in the absence of a recent transaction.

170.10 The *valuer must* consider whether *significant* changes in circumstances warrant a change in the *valuation method* either:

(a) between a transaction date and the current *valuation date*, or

(b) between an earlier *valuation date* and the current *valuation date*.

IVS 210 Intangible Assets

10. Overview

10.01 The principles contained in the General Standards apply to *valuations* of *intangible assets* and *valuations* with an *intangible asset* component.

10.02 This standard contains additional requirements that apply to *valuations* of *intangible assets*.

20. Introduction

20.01 An *intangible asset* is a non-monetary *asset* that manifests itself by its economic properties. It does not have physical substance. It grants rights and/or economic benefits to its owner.

20.02 Specific *intangible assets* are defined and described by characteristics such as their ownership, function, market position, image, and legal protection. These characteristics differentiate *intangible assets* from one another.

20.03 There are many types of *intangible assets*. They are often considered to belong to one or more of the following categories, or into goodwill:

(a) marketing-related *intangible assets* are used primarily in the marketing or promotion of products or services. Examples include trademarks, trade names, unique trade design and internet domain names, as well as certain data,

(b) customer-related *intangible assets.* Examples include customer lists, backlog, customer contracts, and contractual and non-contractual customer relationships,

(c) artistic-related *intangible assets* arise from the right to benefits from artistic works. Examples include as plays, books, films and music, and from non- contractual copyright protection,

(d) contract-related *intangible assets* represent the *value* of rights that arise from contractual agreements. Examples include licensing and royalty agreements, service or supply contracts, lease agreements, permits, broadcast rights, servicing contracts, employment contracts and non-competition agreements, concessions, and natural resource rights,

(e) technology-related *intangible assets* arise from contractual or non- contractual rights to use technology. Examples include patented technology, unpatented technology, data, databases, formulae, designs, software, processes or recipes.

20.04 Although similar *intangible assets* within the same category share some characteristics with one another, they also have differentiating characteristics that vary according to the type of *intangible asset*.

20.05 Certain *intangible assets* combine elements of several categories of *intangible assets*.

20.06 Differences in how *intangible assets* are defined can lead to *significant* differences in *value*. When determining which *intangible assets* to value, the *valuer must* consider that the definition of *intangible assets* differs depending on the *intended use* of the *valuation*.

20.07 ***Goodwill***

20.08 Generally, goodwill is any future economic benefit arising from a *business*, an interest in a *business* or from the use of a group of *assets* which has not been separately recognised in another *asset*. The *value* of goodwill is typically measured as the residual amount remaining after the values of all identifiable tangible, intangible and monetary *assets*, adjusted for actual or contingent liabilities, have been deducted from the *value* of a *business*.

20.09 In certain *intended uses* of a *valuation*, such as financial reporting, the *value* of goodwill is determined as the residual amount remaining after the *values* of all identifiable *tangible*, *intangible* and monetary *assets*, adjusted for actual or contingent *liabilities*, have been deducted from the *value* of a *business* or from the *price* paid in the purchase of a *business*.

20.10 Other circumstances requiring a *valuation*, such as litigation, encompass broad definitions of goodwill. Examples of such definitions include:

(a) the benefit and advantage of the good name, reputation and connection of a *business*, and

(b) the *value* of a *business* beyond the *value* of its tangible and promptly realisable *assets*.

20.11 Some *intended uses* of a *valuation* require that goodwill be divided into transferable goodwill that can be transferred to third parties, and non- transferable or "personal" goodwill.

20.12 The *valuer must* carefully consider the definition of goodwill and of its applicable divisions appropriate for the *intended use* of the *valuation*.

20.13 Since the measurement of goodwill sometimes depends on which other *tangible* and *intangible assets* are recognised, its *value* can vary when determined for different *intended uses*. For example, where the *intended use* of a *valuation* is financial reporting in the context of a *business* combination, *intangible assets* are recognised and measured according to the prescriptions of applicable financial reporting standards.

20.14 While aspects of goodwill vary depending on the *intended use* of the *valuation*, goodwill includes elements such as:

(a) synergies arising from a combination of two or more *businesses* such as reductions in operating *costs*, economies of scale or product mix dynamics,

(b) expected opportunities for *business* expansion,

(c) the benefit of an assembled workforce,

(d) the benefit expected to be derived from future *assets*, such as new customer relationships and future technologies, and

(e) assemblage and parts of going concern value.

20.15 *Intangible asset valuations* are performed for a variety of *intended uses*. Circumstances requiring an *intangible asset valuation* include but are not limited to:

(a) financial reporting purposes, such as accounting for *business* combinations, *asset* acquisitions and sales, and impairment analysis,

(b) tax reporting purposes, such as transfer pricing analyses, estate and gift tax planning and reporting, and ad valorem taxation analyses,

(c) litigation in instances such as shareholder disputes, damage calculations and marital dissolutions (divorce),

(d) other statutory or legal events such as compulsory purchases/eminent domain proceedings,

(e) general consulting, collateral lending, transactional support engagements and insolvency proceedings.

30. Valuation Framework

30.01 In accordance with IVS 100 *Valuation Framework*, the *valuer must* comply with the *valuer* principles (see *IVS 100 Valuation Framework*, section 10).

40. Scope of Work

40.01 When valuing *intangible assets*, the *valuer must* comply with IVS 101 *Scope of Work*.

40.02 When valuing *businesses*, business interests, real property, and machinery and equipment, the *valuer must* consider whether there are *intangible assets* associated with those *assets* and whether those directly or indirectly impact the *asset* being valued. For example, when using an income approach to value a hotel, the contribution to *value* of the hotel's brand may already be reflected in the profit generated by the hotel.

40.03 The *valuer must* understand whether *intangible assets should* be *valued* separately or grouped with other *assets.*

40.04 In defining and isolating the subject *intangible asset(s)*, the *valuer must:*

(a) follow any legislation, regulation, case law and other interpretative guidance applicable for the *intended use* of the *valuation*.

(b) consider the specific rights and restrictions attached to the *asset*, its transferability, contractual or geographic scope, whether it is to be valued on a stand-alone basis or as part of a bundle, and how a relevant party would be expected to transact for the *asset*.

50. Bases of Value

50.01 In accordance with IVS 102 *Bases of Value*, the *valuer must* select the appropriate *basis(es) of value* when valuing *intangible assets*.

50.02 *Valuations* of *intangible assets* can be performed using *bases of value* defined by entities/organisations other than the IVSC. Some examples of these *bases of value* are mentioned in IVS 102 *Bases of Value.*

50.03 The *valuer must* understand and follow the legislation, regulation, case law and other interpretative guidance related to those *bases of value* effective at the *valuation date*.

60. Valuation Approaches and Methods

60.01 The three *valuation approaches* described in IVS 103 *Valuation Approaches* may be applied to the *valuation* of *intangible assets*.

60.02 When selecting a valuation approach and method, in addition to the requirements of this standard, the *valuer must* follow the requirements of IVS 103 *Valuation Approaches*, including para 10.04.

70. Market Approach

70.01 Under the market approach, the *value* of an *intangible asset* is determined by reference to market activity, such as transactions involving identical or similar *assets*.

70.02 The *valuer must* comply with paras 20.02 and 20.03 of IVS 103 *Valuation Approaches* when determining whether to apply the market approach to the *valuation* of *intangible assets*.

70.03 The *valuer should* only apply the market approach to value *intangible assets* if both of the following criteria are met:

(a) Information is available on arm's-length transactions involving identical or similar *intangible assets* on or near the *valuation date*, and

(b) sufficient information is available to allow the *valuer* to adjust for all *significant* differences between the subject *intangible asset* and those involved in the transactions.

70.04 Examples of *intangible assets* for which the market approach is sometimes used include

(a) broadcast spectrum,

(b) internet domain names, and

(c) taxi licenses ("medallions").

70.05 The guideline transactions method is generally the only method under the market approach that can be applied to *intangible assets*.

70.06 The *valuer must* consider using the guideline public company method under the market approach to value an *intangible asset* where a security comparable to the subject *intangible asset* is publicly traded. For example, contingent value rights (CVRs) are tied to the performance of a particular product or technology.

80. Income Approach

80.01 Under the income approach, the *value* of an *intangible asset* is determined by reference to the present value of income, cash flows or *cost* savings attributable to the *intangible asset* over its economic life.

80.02 The *valuer must* comply with paras 30.02 and 30.03 of IVS 103 *Valuation Approaches* when determining whether to apply the income approach to the *valuation* of *intangible assets*.

80.03 Income attributable to a specific *intangible asset* is often commingled with revenue generated by a *business'* provision of goods and services. Income-based methods for valuing *intangible assets* often start with the aggregate income from a group of assets, then isolate the contribution attributable to the subject *intangible asset(s)*.

80.04 The income approach is commonly applied to the *valuation* of *intangible assets*. It is frequently used to value *intangible assets* including the following:

(a) technology, (e.g. patents)

(b) customer-related intangibles (e.g., backlog, contracts, relationships),

(c) tradenames / trademarks / brands,

(d) operating licenses (e.g., franchise agreements, gaming licenses, broadcast spectrum), and

(e) non-competition agreements.

80.05 ***Income Approach Methods***

80.06 The income approach includes several methods. Similar or equivalent methods are named differently depending on the *jurisdiction* and the *intended use* of the *valuation*. The following methods are discussed in this standard in more detail:

(a) excess earnings method,

(b) relief-from-royalty method,

(c) premium profit method or with-and-without method,

(d) greenfield method,

(e) distributor method, and

(f) *cost* savings or avoided cost method.

80.07 ***Excess Earnings Method***

80.08 The excess earnings method estimates the *value* of an *intangible asset* as the present value of the cash flows attributable to the subject *intangible asset* after excluding the proportion of the cash flows that are attributable to other *assets* required to generate the cash flows. These other *assets* are generally known as contributory *assets.*

80.09 The excess earnings method is commonly applied in financial reporting and in other contexts where a residual measure of *value* is appropriate. Examples of such contexts include tax and litigation.

80.10 The excess earnings method can be applied by using:

(a) several periods of forecasted cash flows ("multi-period excess earnings method" or "MPEEM"),

(b) a single period of forecasted cash flows ("single-period excess earnings method"), or

(c) by capitalising a single period of forecasted cash flows ("capitalised excess earnings method" or the "formula method").

80.11 The capitalised excess earnings method or formula method is generally only appropriate if the *intangible asset* is operating in a steady state with relatively stable growth/decay rates, constant profit margins and consistent contributory *asset* levels/charges.

80.12 Most *intangible assets* have economic lives exceeding one period, frequently follow non-linear growth/decay patterns requiring different levels of contributory *assets* over time. The MPEEM–offers the most flexibility and allows the *valuer* to explicitly forecast changes in such *inputs*.

80.13 When applying any variant of the excess earnings method, the *valuer must*:

(a) forecast the amount and timing of future revenues driven by the subject *intangible asset* and related contributory *assets*,

(b) forecast the amount and timing of expenses that are required to generate the revenue from the subject *intangible asset* and related contributory *assets*.

(c) Adjust the *costs* to exclude outlays related to the creation of new *intangible assets*, since such outlays represent investment in future assets rather than *costs* associated with the subject *intangible asset*. For example, these adjustments include:

(i) research and development expenditures related to the development of new technology, and

(ii) marketing expenses related to obtaining new customers.

(d) identify and value the contributory *assets* that are needed to achieve the forecasted revenue and expenses. Examples of contributory *assets* include working capital, fixed *assets*, assembled workforce and identified *intangible assets* other than the subject *intangible asset.*

(e) determine the appropriate rate of return on each contributory *asset* based on an assessment of the risk associated with that *asset*.

(f) in each forecast period, deduct the required returns on contributory *assets* from the forecast profit to arrive at the excess earnings attributable to only the subject *intangible asset*,

(g) determine the appropriate *discount rate* for the subject *intangible asset,*

(h) calculate the present value or capitalise the excess earnings to the *valuation date*, and

(i) calculate and incorporate the tax constraints applicable for the *intended use* of the *valuation*. Where appropriate, this includes a tax amortisation benefit (TAB) for the subject *intangible asset.*

80.14 ***Relief-from-Royalty Method***

80.15 Under the relief-from-royalty method, the *value* of an i*ntangible asset* is determined by the *value* of the hypothetical royalty payments that would be saved by owning the *asset* compared with licensing the *intangible asset* from a third party.

80.16 Conceptually, the Relief-from-Royalty Method may be viewed as

(a) The discounted cash flow method applied to the cash flow that the owner of the *intangible asset* could receive through licensing the *intangible asset* to third parties, or

(b) The discounted cash flow method applied to the cash flow that the user of the *intangible asset* could pay through licensing the *intangible asset* from a third party.

80.17 The *valuer must* consider the circumstances and the *intended use* of the *valuation* when selecting *inputs* and assumptions for the relief from royalty method. For example, circumstances can justify that the *valuer* select the risk-free rate rather than the weighted average cost of capital as the *discount* rate.

80.18 When applying the relief-from-royalty method, the *valuer must*:

(a) develop projections associated with the *intangible asset* being valued for the life of the subject *intangible asset*. The most common metric projected is revenue, as most royalties are paid as a percentage of revenue. However, other metrics such as a per-unit royalty may be appropriate.

(b) develop a royalty rate for the subject *intangible asset*. The hypothetical royalty rate can be derived from:

(i) market royalty rates for comparable or similar transactions, or

(ii) a split of profits that would hypothetically be paid in an arm's-length transaction by a willing licensee to a willing licensor for the rights to use the subject *intangible asset*,

(c) apply the selected royalty rate to the projections to calculate the royalty payments avoided by owning the *intangible asset*,

(d) estimate any additional expenses for which a licensee of the subject *asset* would be responsible. This includes upfront payments required by some licensors. The *valuer should* also assess if a royalty rate assumes expenses such as maintenance, marketing and advertising that are the responsibility of either the licensor or the licensee. The *valuer should* apportion the upfront and ongoing outlays in a manner consistent with the royalty rate.

(e) determine the appropriate *discount rate* for the subject *intangible asset*.

(f) calculate the present value or capitalise the savings associated with ownership of the *intangible asset* at the *valuation date*, and

(g) calculate and incorporate the tax constraints applicable for the *intended use* of the *valuation*. Where appropriate, this includes a tax amortisation benefit (TAB) for the subject *intangible asset*.

80.19 When selecting a royalty rate, the *valuer must* consider the following factors, including but not limited to:

(a) The competitive environment

(b) The importance of the subject *intangible asset* to the owner

(c) The life cycle of the subject intangible~~,~~

80.20 When selecting a royalty rate, the *valuer must* also consider the following:

(a) the participant's profit levels and the relative contribution of the licensed *intangible asset* to their profit.

(b) the specific rights transferred in the agreement to the licensee and any limitations thereto / to those rights.

80.21 ***Premium Profit Method or With and Without method***

80.22 The with-and-without method indicates the *value* of an *intangible asset* by comparing two scenarios: one in which the subject *intangible asset* is deployed and one in which the subject *intangible asset* is not deployed, but where all other factors are kept constant.

80.23 The comparison of the two scenarios can be done in two ways:

(a) calculating the *value* of the *business* under each scenario with the difference in the *business values* being the *value* of the subject *intangible asset*, and

(b) calculating the sum of the present values of the difference in profits over time between the two scenarios.

80.24 Both methods *should* reach similar *values* for the *intangible asset.*

80.25 The with-and-without method is frequently used in the *valuation* of non-competition agreements but may be appropriate in the *valuation* of other *intangible assets* in certain circumstances.

80.26 When applying the with and without method, the *valuer must*:

(a) prepare projections of revenue, expenses, capital expenditures and working capital needs for the *business* assuming the use of the *assets* of the *business* including the subject *intangible asset.* These are the cash flows in the "with" scenario,

(b) use an appropriate *discount rate* to calculate the present value at the *valuation date*-the future cash flows in the "with" scenario, or calculate the *value* of the *business* in the "with" scenario,

(c) prepare projections of revenue, expenses, capital expenditures and working capital needs for the *business* assuming the use of the *assets* of the *business* except the subject *intangible asset*. These are the cash flows in the "without" scenario,

(d) use an appropriate *discount rate* for the *business*, calculate the present value at the *valuation date* the future cash flows or calculate the *value* of the *business* in the "without" scenario,

(e) deduct the present value of cash flows or the *value* of the *business* in the "without" scenario from the present value of cash flows or the *value* of the *business* in the "with" scenario, and

(f) calculate and incorporate the tax constraints applicable for the *intended use* of the *valuation*. Where appropriate, this includes a tax amortisation benefit (TAB) for the subject *intangible asset.*

80.27 For some *intended uses*, the *valuer should* consider probability-weighing the difference between the two scenarios. For example, when valuing a non-competition agreement, the *valuer* may need to assess the extent to which the individual or *business* subject to the agreement would choose to compete, even if the agreement were not in place.

80.28 The *valuer should* reflect the differences in *value* between the two scenarios solely in the cash flow projections rather than by using different *discount rates* in each scenario.

80.29 ***Greenfield Method***

80.30 Under the greenfield method, the *value* of the subject *intangible asset* is determined using cash flow projections that assume the only *asset* of the *business* at the *valuation date* is the subject *intangible asset*.

80.31 The greenfield method assumes that the owner of the subject *asset* builds, buys or rents the contributory *assets*.

80.32 The greenfield method is often used to estimate the *value* of "enabling" *intangible assets* such as franchise agreements and broadcast spectrum, casino or energy distribution licences, and other regulatory permits that enable a *business* to operate.

80.33 When applying the greenfield method, the *valuer must:*

(a) prepare projections of revenue, expenses, capital expenditures and working capital needs for the *business*, assuming the subject *intangible asset* is the only *asset* owned by the subject *business* at the *valuation date*, and including the time required to acquire or build the *assets* and for the *business* to achieve expected levels of operation.

(b) estimate the timing and outlays related to the acquisition, creation or rental of all other *assets* needed to operate the subject *business*,

(c) use an appropriate *discount rate* for the *business*, calculate the present value at the *valuation date* of the future cash flows to determine the *value* of the subject *business* with only the subject *intangible asset* in place, and

(d) calculate and incorporate the tax constraints applicable for the *intended use* of the *valuation*. Where appropriate, this includes a tax amortisation benefit (TAB) for the subject *intangible asset.*

80.34 When considering building or buying the contributory *assets* under the greenfield method, the *valuer must* use the *cost* of replacement *assets* of equivalent utility rather than the reproduction cost of such *assets*.

80.35 ***Distributor Method***

80.36 In some circumstances, the distributor method is referred to as the disaggregated method.

80.37 The distributor method assumes that *businesses* comprise various functions that are expected to generate profits. Since distributors generally only perform functions related to distribution of products to customers rather than the development of intellectual property or manufacturing, information on profit margins earned by distributors is used to estimate the excess earnings attributable to customer-related *intangible assets*.

80.38 In *valuations* for certain *intended uses*, the distributor method is appropriate for valuing customer-related *intangible assets*. In those cases, another *intangible asset*, such as a technology or a brand, is deemed to be the primary or most *significant intangible asset* and is valued under a variant of the excess earnings method.

80.39 When applying the distributor method, the *valuer must*:

(a) prepare projections of revenue associated with customer relationships existing at the *valuation date*. These projections *must* reflect expected growth in revenue from existing customers as well as the effects of customer attrition,

(b) identify comparable distributors that have customer relationships similar to the subject *business* and calculate the profit margins achieved by those distributors,

(c) apply the distributor profit margin to the projected revenue,

(d) identify the contributory *assets* related to performing a distribution function required to achieve the forecast revenue and expenses. Generally, distributor contributory *assets* include working capital, fixed *assets* and workforce. However, distributors seldom require other *assets* such as trademarks or technology,

(e) determine the appropriate rate of return on each contributory asset based on an assessment of the risk associated with that *asset*,

(f) in each forecast period, deduct the required returns on contributory *assets* from the forecast distributor profit to arrive at the excess earnings attributable to only the subject *intangible asset*,

(g) determine the appropriate *discount rate* for the subject *intangible asset* and calculate the present value at the *valuation date* of the excess earnings, and

(h) calculate and incorporate the tax constraints applicable for the intended use of the *valuation*. Where appropriate, this includes a tax amortisation benefit (TAB) for the subject *intangible asset.*

80.40 ***Cost Savings or Avoided Cost Method***

80.41 Under the *cost* savings method, the *value* of the subject *intangible asset* is determined by the present value an owner or user of the subject *asset* expects to avoid by owning or having the right to use the subject *asset*, compared to a scenario in which the *asset* is not available.

80.42 Examples where the *cost* savings method is used include where the *intangible asset* enables lower scrap or defect rates, lower operating or compliance *costs*, avoided licence fees, or reduced procurement *costs*.

80.43 When applying the *cost* savings method, the *valuer should*:

(a) establish the link between the subject *asset* and the expected *cost* savings,

(b) quantify the *cost* savings net of any incremental *costs* over the time these savings are expected to last,

(c) use an appropriate *discount rate* for the *asset* and calculate the present value of the savings at the *valuation date* and,

(d) calculate and incorporate the tax constraints applicable for the *intended use* of the *valuation*. Where appropriate, this includes a tax amortisation benefit (TAB) for the subject *intangible asset*.

90. Cost Approach

90.01 Under the cost approach, the *value* of an *intangible asset* is based on the *cost* of an identical *asset* or, alternatively, the *cost* of an *asset* providing similar service potential or utility.

90.02 The *valuer must* comply with paras 40.02 and 40.03 of IVS 103 *Valuation Approaches* when determining whether to apply the cost approach to the *valuation* of *intangible assets*.

90.03 The cost approach is commonly used for *intangible assets* such as the following:

(a) acquired third-party software,

(b) non-marketable software developed and internally developed, and

(c) assembled workforce.

90.04 The cost approach *should* be used when no other approach can be applied satisfactorily.

90.05 Two main methods fall under the cost approach: replacement cost and reproduction cost. However, many *intangible assets* do not have physical form that can be reproduced and *assets* such as software, which can be reproduced, generally derive *value* from their function/utility rather than their exact lines of code. As such, the replacement cost is commonly applied ~~to~~ in the *valuation* of *intangible assets*.

90.06 The replacement cost method assumes that a participant would pay no more for the *asset* than the *cost* that would be incurred to replace the *asset* with a substitute of comparable utility or functionality.

90.07 When applying the replacement cost method, the *valuer must* consider:

(a) the direct and indirect *costs* of replacing the utility of the *asset*, including labour, materials and overheads,

(b) whether the subject *intangible asset* is subject to obsolescence. While *intangible assets* do not become physically obsolete, they can be subject to economic obsolescence,

(c) whether it is appropriate to include a profit mark-up on the included *costs*. The *price* paid for an *asset* acquired from a third party would presumably reflect their *costs* associated with creating the *asset* as well as some form of profit to provide a return on investment.

(d) whether opportunity costs *should* also be included. These reflect *costs* associated with not having the subject *intangible asset* in place for some time during its creation.

90.08 When applying the cost approach, the *valuer should* consider calculating and incorporating the tax constraints applicable for the *intended use* of the *valuation*. Where appropriate, this includes a tax amortisation benefit (TAB) for the subject *intangible asset*.

100. Data and Inputs

100.01 In accordance with IVS 104 *Data and Inputs*, the *valuer must* maximise the characteristics of relevant and *observable data*.

100.02 In accordance with IVS 104 *Data and Inputs: Appendix, the valuer should* consider *significant Sustainability* considerations and *ESG* factors in determining the *value* of *intangible assets.*

100.03 The diverse nature of *intangible assets*, combined with the fact that these are often transacted as part of a broader portfolio of *assets* in transactions such as mergers and acquisitions, limits the availability of market evidence for transactions involving identical or comparable *assets*. Where market evidence is available, it usually comprises *assets* that are similar, but not identical to the subject *asset.* The *valuer must* document any *significant* adjustments made to the *observable data* about transactions of *intangible assets*.

100.04 Where evidence of either *prices* or *valuation* multiples is available, the *valuer must* consider adjusting these to reflect differences between the subject *asset* and the *assets* involved in the transactions.

100.05 The *valuer should* assess whether such adjustments are only determinable at a qualitative, rather than quantitative, level. The need for *significant* qualitative adjustments could indicate that the *valuer should* employ another approach for the *valuation*.

110. Valuation Models

110.01 In accordance with IVS 105 *Valuation Models*, the *valuer must* maximise as many of the characteristics of suitable *valuation models* as possible.

110.02 *Valuation models must* be suitable for the *intended use* of the *valuation* and consistent with appropriate *inputs*.

120. Documentation and Reporting

120.01 When valuing an *intangible asset*, the *valuer must* comply with the requirements of *valuation* IVS 106 *Documentation and Reporting.*

130. Special Considerations for Intangible Assets

130.01 The following sections address a non-exhaustive list of topics relevant to the *valuation* of *intangible assets*

(a) *Discount rates*/Rates of Return for *Intangible Assets* (section 140),

(b) *Intangible Asset* Economic Lives (section 150),

(c) Tax Amortisation Benefit (section 160).

140. Discount Rates/Rates of Return for Intangible Assets

140.01 In selecting a *discount rate* for an *intangible asset*, the *valuer must* assess the risks associated with the subject *intangible asset* and consider observable *discount rate* benchmarks.

140.02 When assessing the risks associated with an *intangible asset* within a *business* or a group of *assets*, the *valuer must* consider relevant factors, including the following:

(a) The higher risk inherent to *intangible assets* compared to *tangible assets.*

(b) A highly specialised *intangible asset* may have higher risk than *assets* with multiple potential uses,

(c) single *intangible assets* may have more risk than groups of *assets* (or *businesses*),

(d) *intangible assets* used in risky (sometimes referred to as non-routine) functions may have higher risk than *intangible assets* used in more low-risk or routine activities. For example, *intangible assets* used in research and development activities may be higher risk than those used in delivering existing products or services,

(e) the life of the *asset*. *Intangible assets* with longer lives are often considered to have higher risk, all else being equal,

(f) *intangible assets* with more readily estimable cash flow streams deriving from an order backlog, may have lower risk than similar *intangible assets* with less estimable cash flows, such as customer relationships.

140.03 In determining a *discount rate* for *intangible assets*, the *valuer must* consider the following benchmarks:-

(a) risk-free rates with similar maturities to the life of the subject *intangible asset*,

(b) *cost* of debt or borrowing rates with maturities and terms comparable to the life of the subject *intangible asset*,

(c) *cost* of equity or equity rates or return for participants for the subject *intangible asset*, or of the entity owning/using the subject *intangible asset*,

(d) weighted-average-cost-of-capital (WACC) of participants for the subject *intangible asset* or of the company owning/using the subject *intangible asset*,

(e) in contexts involving a recent *business* acquisition including the subject *intangible asset*, the internal rate-of-return for the transaction *should* be considered, and

(f) for certain *intended uses* such as financial reporting and in contexts involving a *valuation* of all *assets* of a *business*, the *valuer should* perform a weighted-average-return-on-assets (WARA) analysis to confirm the reasonableness of selected *discount rates*.

150. Intangible Asset Economic Lives

150.01 The *valuer should* consider the economic life of the subject *intangible assets*. The economic life of an *intangible asset* may be a finite period limited by legal, technological, functional, or economic factors. Other *assets* may have an indefinite life.

150.02 The *valuer should* consider that the economic life of an *intangible asset* in the context of a *valuation* may differ from the concept of remaining useful life in accounting or tax purposes.

150.03 The *valuer must* consider individually and jointly the legal, technological, functional and economic factors affecting the economic life of an *intangible asset.*

150.04 In estimating the economic life of an *intangible asset*, the *valuer should* consider the pattern of use or its likely replacement. Certain *intangible assets* may be abruptly replaced when a new, better or cheaper alternative becomes available, while others may only be replaced slowly over time.

150.05 For customer-related *intangible assets*, attrition is a key factor in estimating both economic life and attributable cash flows. Attrition applied in the *valuation* of *intangible assets* is a quantification of expectations regarding future losses of customers.

150.06 When measuring historical attrition and estimating future attrition, the *valuer must* consider the following:

(a) assuming positive or negative growth in revenue per period, per customer or customer cohort existing at the *valuation date*,

(b) assuming a constant rate of loss from one period to the next over the life of the customer relationships if customer loss does not appear to be dependent on the age of the customer relationship,

(c) assuming a variable rate of loss from one period to the next over the life of the customer relationships if the rate of customer loss is dependent on the age of the customer relationship,

(d) measuring attrition based on either revenue per customer, or number of customers/customer count as appropriate, or a combination of both, based on the characteristics of the customer group,

(e) segregating customers into different groups. Customers may be segregated based on factors including but not limited to geography, size of customer and type of product or service purchased, and

(f) that the period used to measure attrition varies, depending on circumstances. The *valuer should* select a period that reflects the characteristics of the usage of the *intangible asset*.

160. Tax Amortisation Benefit (TAB)

160.01 Where appropriate for the *intended use* of the *valuation* and the *valuation method* employed, the *valuer must* calculate and include in the *valuation* the Tax Amortisation Benefit (TAB) for the subject *intangible asset.*

IVS 220 Non-Financial Liabilities

10. Overview

10.01 The principles contained in the General Standards apply to *valuations* of non-financial liabilities and *valuations* with a *non-financial liability* component.

10.02 This standard contains additional requirements that apply to *valuations* of *non-financial liabilities*.

10.03 In *valuations* of *non-financial liabilities,* when determining *discount rates* and risk margins, the *valuer must* assess whether IVS 103 *Valuation Approaches* (Appendix A20.38–A20.50) conflicts with IVS 220 *Non-Financial Liabilities*. In those circumstances, the *valuer must* apply the principles in sections 140 and 150 of this standard.

20. Introduction

20.01 For purposes of IVS 220 *Non-Financial Liabilities*, *non-financial liabilities* are defined as those liabilities requiring a non-cash performance obligation to provide goods or services.

20.02 *Non-financial liabilities* include but are not limited to:

(a) deferred revenue or contract liabilities,

(b) warranties,

(c) environmental liabilities,

(d) asset retirement obligations

(e) certain contingent consideration obligations,

(f) loyalty programmes,

(g) certain litigation reserves and contingencies,

(h) certain indemnifications and guarantees, and

(i) certain transactions also involving *financial instruments*

20.03 Although certain contingent consideration liabilities may require a non-cash performance obligation, such *liabilities* are not included in the scope of IVS 220 *Non-Financial Liabilities.* In those circumstances, the *valuer must* consider whether the *valuation* falls under IVS 500 *Financial Instruments.*

20.04 Asset-liability symmetry does not necessarily exist for *non-financial liabilities. Non- financial liabilities* are often valued using a *liability* framework that does not require a corresponding *asset* to be recognised or valued by another party.

20.05 When an *asset* corresponding to the *non-financial liability* is recognised by the counterparty, the *valuer must* assess if the *value* reflects asset-liability symmetry under circumstances consistent with the scope of work of the *valuation* engagement for the subject *non-financial liability.*

20.06 The *valuer must* understand and follow the legislation, regulation, case law, and other interpretative guidance related to those *bases of value* effective at the *valuation date* (see *IVS 200 Businesses and Business Interests,* para 50.02*).*

20.07 The *valuer should* reconcile the *value* of a *Non-Financial Liability* to a corresponding *asset* in rare circumstances where:

(a) non-financial *liabilities* often do not have a recorded corresponding *asset* recognised by the counterparty (e.g., environmental *liability*), or can only be transferred in conjunction with another *asset* (e.g., an automobile and related warranty are only transferred together),

(b) the corresponding *asset* of a *non-financial liability* may be held by numerous parties for which it is impractical to identify and reconcile the *asset values*,

(c) the market for the non-financial *asset* and *liability* is often highly illiquid, thus resulting in asymmetric information, high bid-ask spreads, and asset-liability asymmetry.

20.08 Participants that most often transact in the subject *non-financial liability* may not be the comparable companies and competitors of the entity holding the subject *non-financial liability*. Examples of such participants include insurance companies, third party warranty issuers, and others. The *valuer should* consider if a market, or market participants consistent with the applicable *basis of value*, exist outside the immediate industry in which the entity holding the subject *non-financial liability* operates.

20.09 The *valuer must* understand whether the non- financial *liabilities are to* be valued separately or grouped with other *assets*.

20.10 Circumstances that include the *valuation* of a *Non-Financial Liability* include but are not limited to:

(a) for financial reporting purposes, *valuations* of non-financial *liabilities* are often required in connection with accounting for *business* combinations, *asset* acquisitions and sales, and impairment analysis,

(b) for tax reporting purposes, *non-financial liability valuations* are often needed for transfer pricing analyses, estate and gift tax planning and reporting, and ad valorem taxation analyses,

(c) non-financial *liabilities* may be the subject of litigation, requiring *valuation* analysis in certain circumstances,

(d) *valuation* of non-financial *liabilities* as part of general consulting, collateral lending and transactional support engagements.

30. Valuation Framework

30.01 In accordance with IVS 100 *Valuation Framework*, the *valuer must* comply with the *valuer* principles (see IVS100 Valuation Framework, section 10).

40. Scope of Work

40.01 The *valuer must* comply with the requirements of *valuation* IVS 101 Scope of Work when valuing a *non-financial liability*.

50. Bases of value

50.01 In accordance with IVS 102 *Bases of Value*, the *valuer must* select the appropriate *basis(es) of value* when valuing non-financial liabilities.

50.02 V*aluations* of *non-financial Liabilities* can be performed using *bases of value* defined by entities/organisations other than the IVSC. Some examples of these *bases of value* are mentioned in IVS 102 *Bases of Value*.

50.03 The *valuer must* understand and follow the legislation, regulation, case law and other interpretative guidance related to those *bases of value* effective at the *valuation date* (see IVS 200 *Businesses and Business Interests*, para 30.02).

60. Valuation Approaches and Methods

60.01 The three principal *valuation approaches* described in IVS 103 *Valuation Approaches* may be applied to the *valuation* of Non-financial *liabilities*.

60.02 When selecting a *valuation approach* and *valuation method*, in addition to the requirements of this standard, the *valuer must* follow the requirements of IVS 103 *Valuation Approaches*, including para 10.04.

70. Market Approach

70.01 Under the market approach, the *value* of a *non-financial liability* is determined by reference to market activity (for example, transactions involving identical or similar *non-financial liabilities*).

70.02 Transactions involving *non-financial liabilities* frequently also include other *assets*, such as *business* combinations that include *tangible* and *intangible assets*.

70.03 While stand-alone transactions of non-financial *liabilities* are infrequent, the *valuer must* consider relevant market-based indications of *value*.

70.04 If the *valuer* assesses that market-based indications of *value* do not provide a reasonable basis to apply the market approach, the *valuer must* consider the use of *observable data* in the application of other *valuation* approaches.

70.05 Market indications of *value* include but are not limited to:

(a) pricing from third parties to provide identical or similar products as the subject *non-financial liability* (eg, deferred revenue),

(b) pricing for warranty policies issued by third parties for identical or similar obligations,

(c) the prescribed monetary conversion amount as published by participants for certain loyalty reward obligations,

(d) the traded *price* for contingent value rights (CVRs) with similarities to the subject *non-financial liability* (eg, contingent consideration),

(e) observed rates of return for investment funds that invest in non-financial *liabilities* (eg, litigation finance).

70.06 The *valuer must* comply with paras 20.02 and 20.03 of IVS 103 *Valuation Approaches* when determining whether to apply the market approach to the *valuation* of *non-financial liabilities*.

70.07 Where evidence of market *prices* of *non-financial liabilities* is available, the *valuer must* consider adjustments to these to reflect differences between the subject *non-financial liability* and the recorded transactions.

70.08 The *valuer should* assess whether adjustments to market *prices* of *non-financial liabilities* are only determinable at a qualitative, rather than quantitative, level. The need for *significant* qualitative adjustments could indicate that the *valuer should* employ another approach for the *valuation*.

70.09 In certain instances, the *valuer should* rely on market *prices* or evidence of transactions for an *asset* similar to the subject *non-financial liability*. In such instances, the *valuer must* consider an entity's ability to freely transfer the subject *non-financial liability*, or the existence of restrictions to do so. The *valuer should* determine whether adjustments to reflect the restrictions *should* be included when relying on evidence of transactions of similar *non-financial* liabilities. The *valuer should* determine if the transfer restrictions are characteristics of the subject *non-financial liability* (for example, an illiquid market) or are characteristics of the entity holding the *non-financial liability*.

70.10 The comparable transaction method, also known as the guideline transactions method, is generally the only market approach method that can be applied to value *non-financial liabilities*.-

70.11 In rare circumstances, a security similar to the subject *non- financial liability* is publicly traded, allowing the use of the guideline public company method. One example of such securities is contingent value rights that are tied to the performance of a particular product or technology. The *valuer must* assess the suitability of such a security for the *valuation* of a *non-financial liability.*

70.12 ***Market Approach Methods***

70.13 A method to value *non-financial liabilities* under the Market Approach is often referred to as the Top-Down Method.

70.14 ***Top Down Method***

70.15 Under the Top Down Method, valuing *non-financial liabilities* is based on the premise that reliable *observable data* are available for the performance obligation.

70.16 A participant fulfilling the obligation to deliver the product or services associated with the *non-financial liability* can estimate the *liability* by deducting *costs* already incurred toward the fulfilment obligation, plus a markup on those *costs*, from the market *price* of services.

70.17 When market information is used to determine the *value* of the subject *non-financial liability*, discounting is typically not necessary because the effects of discounting are incorporated into observed market *prices*.

70.18 When applying the Top Down Method, the *valuer must*:

(a) determine the market *price* of the non-cash fulfilment,

(b) determine the *costs* already incurred and *assets* utilised by the transferor,

(c) determine a reasonable profit margin on the *costs* already incurred,

(d) subtract *costs* incurred and profit from the market *price*.

80. Income Approach

80.01 Under the income approach, the *value* of a *non-financial liability* is often determined by reference to the present value of the *costs* to fulfil the obligation plus a profit margin that would be required to assume the *liability*.

80.02 The *valuer must* comply with paras 30.02 and 30.03 of IVS 103 *Valuation Approaches* when determining whether to apply the income approach to the *valuation* of *non-financial liabilities*.

80.03 ***Income Approach Methods***

80.04 The primary method to value *non-financial liabilities* under the Income Approach is often referred to as the Bottom-Up Method.

80.05 ***Bottom-Up Method***

80.06 Under the Bottom-Up Method, the *non-financial liability* is measured as the *costs* required to fulfil the performance obligation, plus a reasonable mark-up on those *costs*, discounted to present value. These *costs* may or may not include certain overhead items.

80.07 When applying the Bottom-Up method, the *valuer must*:

(a) determine the *costs* required to fulfil the performance obligation.

(b) determine a reasonable mark-up on the fulfilment effort.

(c) determine the timing of fulfilment and calculate the present value at the *valuation date.*

90. Cost Approach

90.01 The cost approach has limited application for *non-financial liabilities*.

90.02 The *valuer must* comply with 40.02 and 40.03 of IVS 103 *Valuation Approaches* when determining whether to apply the cost approach to the *valuation* of *non-financial liabilities*.

100. Data and Inputs

100.01 In accordance with IVS 104 *Data and Inputs*, the *valuer must* maximise the use of relevant and *observable data.*

100.02 In accordance with IVS 104 *Data and Inputs: Appendix*, the *valuer should* consider *significant Sustainability* considerations and *ESG* factors in determining the *value* of *non-financial liabilities*.

110. Valuation Models

110.01 In accordance with IVS 105 *Valuation Models*, the *valuer must* maximise the characteristics of appropriate *valuation models*.

120. Documentation and Reporting

120.01 When valuing a *non-financial liability*, the *valuer must* comply with the requirements of *valuation* IVS 106 *Documentation and Reporting.*

130. Special Considerations for Non-Financial Liabilities

130.01 The following sections address a non-exhaustive list of topics relevant to the *valuation* of non-financial *liabilities*.

(a) *Discount Rates* for Non-Financial *Liabilities* (section 140),

(b) Estimating Cash Flows and Risk Margins (section 150),

(c) Restrictions on Transfer (section 160),

(d) Taxes (section 170).

140. Discount Rates for Non-Financial Liabilities

140.01 The *discount rate should* account for the time *value* of money and non-performance risk.

140.02 The *valuer must* consider the terms of the subject *non-financial liability* when determining the appropriate *inputs* for the time *value* of money and non-performance risk.

140.03 In applicable circumstances, the *valuer should* adjust the cash flows for non-performance risk.

140.04 The *valuer must* consider the terms imposed on a party undertaking to satisfy the obligation when assessing the non-performance risk of a *non-financial liability*.

150. Estimating Cash Flows and Risk Margins

150.01 The principles contained in IVS 103 *Valuation Approaches* may not always apply to *valuations* of *non-financial liabilities* and *valuations* with a *non-financial liability* component (see IVS 103 *Valuation Approaches*, Appendix A20.16–A20.24). In those cases, the *valuer must* apply the principles in sections 140 and 150 of this standard in *valuations* of *non-financial liabilities*.

150.02 *Non-financial liability* cash flow forecasts often involve the explicit modelling of multiple scenarios of possible future cash flows to derive a probability-*weighted* expected cash flow forecast. This method is often referred to as the Scenario Based Method (SBM). The SBM includes simulation techniques such as Monte Carlo simulation. The SBM is commonly used when future payments are not contractually defined but vary depending upon future events. When the expected cash flows relating to the *non-financial liability* are a function of systematic risk factors, the *valuer should* consider the appropriateness of the SBM. The *valuer should* consider applying other methods based on option pricing formulas (OPM).

150.03 In estimating cash flows related to *non-financial liabilities, the valuer must* develop and incorporate explicit assumptions. These assumptions include:

(a) the *costs* that a third party would incur in performing the tasks necessary to fulfil the obligation,

(b) other amounts that a third party would include in determining the *price* of the transfer, including, for example, inflation, overhead, equipment charges, profit margin, and advances in technology,

(c) the extent to which the amount of a third party's *costs* or the timing of its *costs* would vary under different scenarios and the relative probabilities of those scenarios, and

(d) the *price* that a third party would demand and could expect to receive for bearing the uncertainties and unforeseeable circumstances inherent in the obligation.

150.04 When cash flows are uncertain, the *valuer should* consider applying methods based on multiple scenarios. These methods include probability-weighted forecasts, Monte Carlo simulations, or option pricing methods. The *valuer should* incorporate the compensation for bearing such risk into the expected payoff through a cash flow risk margin or the *discount rate*.

150.05 Given the inverse relationship between the *discount rate* and *value*, the *discount rate should* be decreased to reflect the impact of forecast risk. The *valuer should* determine a compensation for bearing risk that is commensurate with the uncertainty about the amount and the timing of cash flows.

150.06 In the *valuation* of *non-financial liabilities*, the *valuer should* consider accounting for forecast risk by varying the *discount rate,* rather than by incorporating a risk margin. The *valuer should* justify this choice.

150.07 The *valuer should* assess whether the cash flow risk margin is a suitable compensation required by a party to be indifferent between fulfilling a *liability* that has a range of possible outcomes, and one that will generate fixed cash outflows.

160. Restrictions on Transfer

160.01 *Non-financial liabilities* often include restrictions on the ability to transfer. Such restrictions are either contractual in nature, or a function of an illiquid market for the subject *non-financial liability,* or both.

160.02 When relying on market evidence, the *valuer should* consider an entity's ability to transfer such *non-financial liabilities* and whether adjustments to reflect the restrictions *should* be applied.

160.03 When applying an income approach in which the *value* of the *non-financial liability* is estimated through the *cost* of fulfilment, the *valuer should* determine if a party willing to take on the *liability* would require an additional risk margin to account for the limitations on transfer.

170. Taxes

170.01 The *valuer should* calculate and incorporate the tax constraints and benefits applicable for the *intended use* of the *valuation* of a *non-financial liability*.

170.02 The *valuer should* use pre-tax cash flows and a pre-tax *discount rate* for the *valuation* of *non-financial* liabilities.

170.03 In certain circumstances, it may be appropriate to perform the analysis with after tax cash flows and after-tax *discount rates*. In such circumstances, the *valuer must* explain and document the rationale for use of after-tax *inputs*.

IVS 230 Inventory

10. Overview

10.01 The principles contained in the General Standards apply to *valuations* of inventory and *valuations* with an inventory component.

10.02 This standard contains additional requirements for *valuations* of inventory.

20. Introduction

20.01 Inventory includes goods which will be used in future production processes (ie, raw materials, parts, supplies), goods used in the production process (ie, work-in-process), and goods awaiting sale (ie, finished goods).

20.02 This standard focuses on *valuation* of inventory of physical goods that are not real property.

20.03 In financial statements of *businesses*, the book value of inventory usually only includes historical *costs*. Profits earned from the production process usually, are generally not capitalised into book value. These profits reflect returns on the *assets* utilised in manufacturing such as working capital, property, plant, and equipment, and *intangible assets*. As a result, the *value* of inventory typically differs from the book value of inventory in financial statements.

20.04 *Valuations* of inventory are performed for a variety of *intended uses*. The *valuer must* understand the *intended use* of a *valuation.*-The *valuer must* also understand whether the inventory is to be valued separately or grouped with other *assets*.

20.05 Circumstances requiring the *valuation* of inventory include but are not limited to:

(a) financial reporting purposes, such as accounting for *business* combinations, *asset* acquisitions and sales, and impairment analysis,

(b) tax reporting purposes, such as transfer pricing analyses, estate and gift tax planning and reporting, and *ad valorem* taxation analyses,

(c) litigation, in instances such as shareholder disputes, damage calculations and marital dissolutions (divorce),

(d) general consulting, collateral lending, transactional support engagements and insolvency.

30. Valuation Framework

30.01 In accordance with IVS 100 *Valuation Framework*, the *valuer must* comply with the *valuer* principles. (see IVS100 Valuation Framework, section 10) when valuing inventory.

40. Scope of Work

40.01 The *valuer must* comply with IVS 101 *Scope of Work*, when valuing inventory.

50. Bases of Value

50.01 In accordance with IVS 102 *Bases of Value*, the *valuer must* select the appropriate *basis(es) of value* when valuing inventory.

50.02 V*aluations* of inventory can be performed using *bases of value* defined by entities/organisations other than the IVSC. Some examples of these *bases of value* are mentioned in IVS 102 *Bases of Value*.

50.03 The *valuer must* understand and follow the legislation, regulation, case law, and other interpretative guidance related to those *bases of value* effective at the *valuation date*.

60. Valuation Approaches and Methods

60.01 The three *valuation approaches* described in IVS 103 *Valuation Approaches* can be applied to the *valuation* of inventory.-

60.02 When selecting a *valuation approach* and *valuation method*, in addition to the requirements of this standard, the *valuer must* follow the requirements of IVS 103 *Valuation Approaches*, including para 10.04.

70. Market Approach

70.01 The market approach references market activity involving identical or similar goods. The market approach usually applies for:

(a) inventory of commoditised products, or

(b) inventory for which a market exists at an interim stage in the production process.

70.02 The *valuer must* comply with paras 20.02 and 20.03 of IVS 103 *Valuation Approaches* when determining whether to apply the market approach to the *valuation* of inventory.

70.03 The *valuer should* only apply the market approach to value inventory if both of the following criteria are met:

(a) information is available on arm's-length transactions involving identical or similar inventory on or near the *valuation date*, and

(b) sufficient information is available to allow the *valuer* to adjust for all *significant* differences between the subject inventory and those involved in the transactions.

70.04 For products that are not commodities or products for which a market exists at an interim production stage, the *valuer should* adjust selling *prices* to account for the disposal effort and related profit.

70.05 The *valuer must* consider market-based indications to determine the selling *price* as an *input* for other methods.

70.06 Other observable markets may provide insights on the profit attributable to the manufacturing and the disposition of *assets* through assignment, sale, transfer and other means. These insights can be used as *inputs* into other *valuation methods*. For example:

(a) distributor profit margins may represent a meaningful market proxy for returns on the disposition process, if an appropriate group of comparable *businesses* is identified,

(b) contract manufacturers may provide a proxy for margins earned through the manufacturing process.

70.07 Where evidence of market *prices* is available, the *valuer should* adjust for differences between the subject inventory and those involved in the transactions.

70.08 The *valuer should* assess whether adjustments to market *prices* of inventories are only determinable at a qualitative, rather than quantitative, level. The need for *significant* qualitative adjustments could indicate that the *valuer should* employ another approach for the *valuation.*

80. Income Approach

80.01 The *valuation* of inventory using the income approach requires the allocation of *value* contributed before the *valuation date* versus the *value* expected to be contributed after the *valuation date*.

80.02 The *valuer must* comply with paras 30.02 and 30.03 of IVS 103 *Valuation Approaches* when determining whether to apply the income approach to the *valuation* of inventory.

80.03 ***Top-Down Method***

80.04 The top-down method is a residual method to value inventory that begins with the estimated selling *price* and deducts remaining *costs* and estimated profit.

80.05 The top-down method separates the *value* accumulated in the production process until the *valuation date* from the *value* that will be accumulated after *valuation date*.

80.06 When applying the top-down method, the *valuer must*:

(a) estimate the selling *price* that includes an estimate of gross margin.

(b) For work in process only, estimate the *costs* to completion, including direct and indirect expenses to be incurred after the *valuation date*. Subtract those *costs*.

(c) subtract the *costs* of disposal. These represent an estimate of *costs* to be incurred after the v*aluation date* to deliver the finished goods to the end customer.

(d) subtract the profit allowance on the *cost* of completion to be incurred for work in process only, and on the disposal process.

(e) consider any necessary holding *costs*. These *costs* may account for the opportunity cost of holding the inventory during the sales process, as well as risk borne during the holding period.

80.07 When determining the *cost* to complete, *costs* of disposal and profit allowance, the *valuer should* identify and exclude any expenses that are intended to provide a future economic benefit beyond the *valuation date*.

80.08 When determining the *costs* already incurred, the *valuer should* consider internally developed *intangible assets* that have contributed toward the completion effort.

80.09 When utilising the top-down method, the *valuer should* consider whether sufficient data are available to appropriately apply the necessary steps. The lack of such data could indicate that the *valuer should* employ another approach for the *valuation.*

80.10 In the context of the *valuation* of inventory, the application of the top-down and of the bottom-up methods *should* yield the same *values*. The *valuer should* use the bottom-up method to corroborate the *value* derived from the top-down method and reciprocally.

80.11 ***Bottom-Up Method***

80.12 When applying the bottom-up method, the *valuer must*:

(a) determine and where necessary, adjust, the book value of the subject inventory.

(b) add any *cost* of buying and holding already incurred,

(c) add any *cost* toward completion already incurred. Such *costs* typically include procurement and manufacturing expenses,

(d) add the estimated profit allowance on total *costs* already incurred.

80.13 When determining the *costs* already incurred, the *valuer should* consider internally developed *intangible assets* that have contributed toward the completion effort.

90. Cost Approach

90.01 The replacement cost method is the primary method for the *valuation* of raw materials inventory.

90.02 The *valuer must* comply with paras 40.02 and 40.03 of IVS 103 *Valuation Approaches* when determining whether to apply the cost approach to the *valuation* of inventory.

90.03 ***Current Replacement Cost Method (CRCM)***

90.04 The current replacement cost method (CRCM) may provide a good indication of *market value* if inventory is readily replaceable in a wholesale or retail *business* (e.g., raw materials inventory).

90.05 The *market value* of raw materials and other inventory may be similar to their net book value in financial statements at the *valuation date*.

90.06 When applying the Current Replacement Cost Method for the *valuation* of inventory, the *valuer must* consider the following adjustments, including but not limited to:

(a) The accounting basis of the inventory in financial statements.

(b) the fluctuations in raw material *prices* and/or slow inventory turnover.

(c) obsolescence and defective goods.

(d) shrinkage due to theft, damage, miscounting, incorrect units of measure, evaporation, etc.

(e) Preparation of raw material, such as purchasing, storage and handling.

100. Data and Inputs

100.01 In accordance with IVS 104 *Data and Inputs*, the *valuer must* maximise the characteristics of relevant and *observable data.*

100.02 In accordance with IVS 104 *Data and Inputs: Appendix,* the *valuer should* consider *significant Sustainability* considerations and *ESG* factors in determining the *value* of an inventory.

100.03 The *valuer should* maintain appropriate consistency between the assumptions used in the *valuation* of inventory and the assumptions used in the *valuation* of other *assets* and/or liabilities.

110. Valuation Models

110.01 In accordance with IVS 105 *Valuation Models*, the *valuer must* maximise the characteristics of suitable *valuation models*.

110.02 *Valuation models must* be suitable for the *intended use* of the *valuation* and consistent with appropriate *inputs*.

120. Documentation and Reporting

120.01 When valuing inventory, the *valuer must* comply with the requirements of *valuation* IVS 106 *Documentation and Reporting.*

130. Special Considerations for Inventory

130.01 The following sections address a non-exhaustive list of topics relevant to the *valuation* of inventory.

(a) identification of value-added processes and returns on *intangible assets* (section 140).

140. Identification of Value-Added Processes and Returns on Intangible Assets

140.01 The *valuation* of inventory involves an allocation of profit between the profit earned before the *valuation date* and the profit earned after the *valuation date*. In practice, profit earned may not be proportional to expenses. In most cases the risks assumed, value added, or *intangible assets* contributed to the inventory before the *valuation date* are not the same as those contributed after the-*valuation date*.

140.02 The *valuer should* not simply allocate profit in proportion to disposition and manufacturing *costs*. This assumption can misallocate profit, as it presupposes that a *business'* production process earns profit on a pro-rata basis based on *costs* incurred.

(a) For manufacturers, this method is inappropriate if the *costs* of materials represent an initial outflow without *significant* efforts.

(b) Such an assumption also fails to recognise the contribution of internally generated *intangible assets* with minimal associated *costs*.

140.03 The *valuer should* distinguish between value-added *costs* and those that are not value-added. The materials portion of Cost-of-Goods-Sold (COGS) may not be a value-added *cost* because it does not contribute any of the profit to the inventory

140.04 In the *valuation* of a *business* that owns internally developed *intangible assets* that contribute to profitability, the *valuer should* include both the return on those *intangible assets* and the return of those *intangible assets* in the total profit margin of the *business*. However, whether *intangible assets* are owned or licensed, the *value* of the inventory *should* be the same.

140.05 The *valuer should* determine the extent to which the technology, trademarks and customer relationships support the manufacturing and distribution processes and whether the returns are applicable to the entire base of revenue. If the *intangible asset* has been utilised to create the inventory (e.g., a manufacturing process *intangible asset*), then the *value* of the inventory is increased. Conversely, if the *intangible asset* is only expected to be utilised in the future, at the time of disposal, the *value* of the inventory is decreased.

140.06 For marketing-related *intangible assets*, the determination of whether the *intangible asset* is an attribute of the inventory may be difficult. To assist in that determination, the *valuer should* consider how the inventory would be marketed by a third party to its customers in a push vs a pull model.

(a) A push model requires *significant* disposal efforts for inventory and is less reliant on marketing intangibles, while

(b) A pull model depends on strong brand development and recognition to pull customers to the product.

140.07 The *valuer must* consider other relevant factors when evaluating the contribution of *intangible assets* to the *value* of inventory. A non-exhaustive list of other factors includes:

(a) the amount of marketing spend,

(b) whether products are sold through a distributor,

(c) the level of attrition for customer relationships, and

(d) any legal rights associated with the *intangible assets.*

140.08 In some cases, the *intangible asset* may consist of several elements that contribute to various aspects of the *value* creation, such as a pharmaceutical product *intangible asset* that is comprised of technology and tradename. The *valuer should* assess how the overall profit related to each element of the *intangible asset* is apportioned to manufacturing the inventory as opposed to the disposal effort.

140.09 Similarly, although a single *intangible asset* may only contribute to either the manufacturing or the disposal effort, the *valuer should* consider whether a portion of the *intangible asset* was contributed before the-*valuation date* and the remainder was contributed after the *valuation date*.

140.10 For example, when assessing the contribution of symbolic Intellectual Property (IP) for finished goods, and although the product bears the respective branding associated with the symbolic IP, the related right to sell the branded product may not be conveyed with the transfer of inventory. As such, the *valuer should* consider including such rights in the *costs* of disposal.

IVS 300 Plant, Equipment, and Infrastructure

10. Overview

10.01 The principles contained in the General Standards apply to *valuations* of plant, equipment and infrastructure (PEI).

10.02 This standard includes modifications, additional requirements or specific examples of how the General Standards apply to *valuations* to which this standard applies. *Valuations* of PEI *must* also follow the applicable standards for that type of *asset* and/or *liability* (see IVS 400 *Real Property*,).

20. Introduction

20.01 Items of PEI (which may sometimes be categorised as a type of personal property) are *tangible assets* that are usually held by an entity for use in the manufacturing/production or supply of goods or services, for rental by others or for administrative purposes and that are expected to be used over a period of time. PEI may also include infrastructure assets, which are typically part of a specialised system, network or group of complementary *assets*. Where applicable, *valuations* relating to infrastructure *should* also have consideration to IVS 400 *Real Property Interests.*

20.02 The "right to use" an item of machinery and equipment (such as a right arising from a lease) would also follow this standard. It *must* also be noted that the "right to use" an *asset* could have a different life span than the service life (that takes into consideration both preventive and predictive maintenance) of the underlying *asset* itself and, in such circumstances, the difference *must* be stated.

20.03 Consistent with the highest and best use premise, a group of *assets* may have greater *value* individually than when considered as part of group of *assets*, or vice versa. PEI for which the highest and best use is "in use" as part of a group of *assets must* be valued using consistent assumptions.

20.04 *Intangible assets* typically fall outside the classification of PEI *assets*. However, an *intangible asset* may have an impact on the *value* of PEI *assets*. Operating software, technical data, production records and patents are examples of *intangible assets* that can have an impact on the *value* of PEI *assets*. If the *valuation* of discrete or embedded *intangible assets* is necessary to value PEI *assets*, those *assets should* be included in the *valuation*.

20.05 A *valuation* of PEI will normally require consideration of a range of factors relating to the *asset* itself, its environment and physical, functional and economic potential. Examples of factors that may need to be considered under each of these headings include the following:

(a) *asset*-related factors:

(i) the *asset's* technical specification,

(ii) the remaining useful, economic or effective life, considering both preventive and predictive maintenance,

(iii) the *asset's* condition, including maintenance history and historical capital expenditure,

(iv) any functional, physical and technological obsolescence,

(v) if the *asset* is not valued in its current location, the *costs* of decommissioning and removal, and any *costs* associated with the *asset's* existing in-place location, such as installation and re- commissioning of *assets* to its optimum status,

(vi) for an *asset* that is used in a leasing context, the lease renewal options and other end-of-lease possibilities (often referred to as terminal value),

(vii) any potential loss of a complementary *asset*, e.g., the operational life of an *asset* may be curtailed by the length of lease on the building in which it is located,

(viii) additional *costs* associated with additional equipment, transport, installation and commissioning, etc, and

(ix) in cases where the historical *costs* are not available for the *asset* that may reside within a plant during a construction, the *valuer* may take references from the engineering, procurement, and/or construction contract(s) (if available).

(b) environmental or external related factors:

(i) the location in relation to the source of raw material and market for the products produced by the *asset* or group of *assets*. The suitability of a location may also have a limited life, e.g., where raw materials are finite or where demand is transitory,

(ii) the impact of any legislation or external related factors that either restricts utilisation or imposes additional operating or decommissioning *costs* on the PEI or reduces demand for a product produced by the *asset* or group of *assets*,

(iii) toxic waste which may be chemical in the form of a solid, liquid or gaseous state *must* be professionally stored or disposed of. This is critical for all industrial manufacturing, and

(iv) licences to operate certain *assets* in certain *jurisdictions* may be restricted, or may have a limited life,

(c) economic-related factors:

(i) the actual or potential profitability of the *asset*, which might be based on comparison of operating *costs* with earnings or potential earnings of the *business* within which the *asset* operates (see IVS 200 *Businesses and Business Interests*),

(ii) the demand for the product manufactured by the *asset* with regard to both macro- and micro-economic factors could impact on demand, and

(iii) the potential for the *asset* to be put to a more valuable use than the current use (i.e., highest and best use).

20.06 *Valuations* of plant and equipment *should* reflect the impact of all forms of obsolescence on *value*.

30. Valuation Framework

30.01 In accordance with IVS 100 *Valuation Framework*, the *valuer must* comply with the *valuer* principles (see IVS 100 *Valuation Framework*, section 10).

40. Scope of Work

40.01 To comply with the requirement to identify the *asset* and/or *liability* to be valued in IVS 101 *Scope of Work*, section 20, to the extent it impacts on *value*, consideration *must* be given to the degree to which the *asset* is attached to, or integrated with, other *assets*. For example:

(a) *assets* may be permanently attached to the land and could not be removed without substantial demolition of either the *asset* or any surrounding structure or building,

(b) an individual machine may be part of an integrated production line where its functionality is dependent upon other *assets*,

(c) an *asset* may be considered to be classified as a component of the real property (e.g., a Heating, Ventilation and Air Conditioning System (HVAC)).

40.02 When clarifying the degree to which the *asset* is attached to, or integrated with, other *assets*, the *valuer must* clearly define what is to be included or excluded from the *valuation*. Any special assumptions relating to the availability of any complementary *assets must* also be stated.

40.03 PEI connected with the supply or provision of services to a building are often integrated within the building and once installed, are often difficult to separate from it. These items will normally form part of the real property interest and therefore the requirements contained within IVS 400 *Real Property Interests must* also be considered, where appropriate. Examples include *assets* with the primary function of supplying electricity, gas, heating, cooling or ventilation to a building and equipment such as elevators.

40.04 If the purpose of the *valuation* requires these items to be valued separately, the scope of work *must* include a statement to the effect that the *value* of these items would normally be included in the real property interest and may not be separately realisable.

40.05 Because of the diverse nature and transportability of many items of PEI, additional assumptions will normally be required to describe the situation and circumstances in which the *assets* are valued. In order to comply with IVS 101 *Scope of Work*, para 20.01 (m) these assumptions *must* be considered and included in the scope of work. Examples of assumptions that may be appropriate in different circumstances include:

(a) that the *assets* are valued as a group, in place and as part of an operating *business*,

(b) that the *assets* are valued as a group, in place but on the assumption that the *business* is not yet in production,

(c) that the *assets* are valued as a group, in place but on the assumption that the *business* is closed,

(d) that the *assets* are valued as a group, in place but on the assumption that it is a forced sale (see IVS 102 *Bases of Value*, Appendix A120),

(e) that the *assets* are valued as individual items for removal from their current location.

40.06 In some circumstances, it may be appropriate to report on more than one set of assumptions, e.g., in order to illustrate the effect of *business* closure or cessation of operations on the *value* of *assets*.

40.07 In accordance with the requirements contained within IVS 101 *Scope of Work*, sections 20 and 30, investigations made during the course of a *valuation* engagement *must* be appropriate for the *intended use* of the *valuation* engagement and the *basis(es) of value*.

40.08 Sufficient investigations and evidence *must* be assembled by means such as inspection, inquiry, research, computation or analysis to ensure that the *valuation* is properly supported. When determining the extent of investigations and evidence necessary, *professional judgement* is required to ensure it is fit for the purpose of the *valuation*.

40.09 When considering 40.07 to 40.08, the *valuer must* state the extent of physical inspection that is to be undertaken (where applicable) within their scope of work.

40.10 In some instances, the *valuer* may carry out a physical inspection of a sample of *asset(s)*. This *must* be stated within the scope of work.

40.11 If no physical inspection is to be undertaken this *must* be stated within the scope of work.

40.12 When a *valuation* engagement involves reliance on information supplied by a party other than the *valuer*, consideration *should* be given as to whether the information is credible or that the information may otherwise be relied upon without adversely affecting the credibility of the *valuation*. *Significant inputs* provided to the *valuer* (e.g., by management/owners) *should* be considered, investigated and/or corroborated. In cases where credibility or reliability of information supplied cannot be supported, the *valuer should* consider to whether or how such information is used (see IVS 101 *Scope of Work*, para 20.01 (j)).

40.13 In considering the credibility and reliability of information provided, the *valuer should* consider matters such as:

(a) the *intended use* of the *valuation*,

(b) the significance of the information to the *valuation* conclusion,

(c) the expertise of the source in relation to the subject matter, and

(d) whether the source is independent of either the subject *asset* and/ or the *intended user* of the *valuation* (see IVS 101 *Scope of Work*, para 20.01 (a)).

40.14 The *intended use* of the *valuation*, the *basis of value*, the extent and limits on the investigations and any sources of information that may be relied upon are part of the *valuation* engagement's scope of work that *must* be communicated to all parties to the *valuation* engagement (see IVS 101 *Scope of Work*).

40.15 If, during the course of a *valuation* assignment, it becomes clear that the investigations or limitations included in the scope of work will not result in a credible *valuation*, or information to be provided by third parties is either unavailable or inadequate, or limitations on investigations such as inspection are so substantial that it will not result in a *valuation* outcome that is adequate for the purpose of the *valuation*, the *valuation must* explicitly state that the *valuation* is not in compliance with IVS (see IVS 100 *Valuation Framework*, section 40 and IVS 101 *Scope of Work*, para 20.05).

50. Bases of Value

50.01 In accordance with IVS 102 *Bases of Value*, the *valuer must* select the appropriate *basis(es) of value* when valuing PEI.

50.02 Using the appropriate *basis(es) of value* and associated premise of value (see IVS 102 *Bases of Value*, Appendix A10–A120) is critical in the *valuation* of PEI because differences in *value* can be *significant*, depending on whether an item of plant and equipment is valued under an "in use" premise, orderly liquidation or forced liquidation (see IVS 102 *Bases of Value*, Appendix A60). The *value* of most PEI is particularly sensitive to different premises of value.

Liquidation value

50.03 In determining any premise of *liquidation value*, it *should* be made clear as to whether the premise is required to be on an in-place (in-situ) or removed (ex-situ) basis. The characteristics associated with the *assets* or group of *assets'* location, and underlying land tenure or lease term, will often impact on the in-place or removed consideration.

50.04 Regardless of whether the *asset* or group of *assets* is being considered on an in-place (in-situ) or removed (ex-situ) basis, typically the premise *should* consider a scenario that would maximise the gross amount that would be realised having consideration to the premise of value under consideration. This may be achieved by selling the *assets* on a piecemeal basis or alternatively may be achieved by selling the *assets* as a group, depending upon the market.

50.05 It *should* be noted that for plant and equipment, selling an *asset* on a removed (ex-situ) or piecemeal basis may be quite common. For infrastructure, selling an *asset* on a removed (ex-situ) or piecemeal basis may or may not be possible and will vary depending upon the characteristics of the *asset*.

50.06 The proposition of a removed (ex-situ) basis raises the possibility that there will be certain *asset* components (or originally incurred indirect *costs*) that are not recoverable once the *asset* is removed (either physically or economically). Such items might include (but not be limited to) foundations, electrical and process piping, transportation *costs*, installation and commissioning *costs*, fixed buildings, safety and protection equipment, etc.

50.07 When a scope of work specifically requires the determination of a net amount (as opposed to gross amount) that would be realised from a liquidation sale, the nature and quantum of the *costs* that will likely be incurred by the seller to get from the gross to the net amount *should* be clearly stated in the *valuation*.

60. Valuation Approaches

60.01 The three principal *valuation approaches* described in IVS 103 *Valuation Approaches* may all be applied to the *valuation* of PEI *assets* and/or *liabilities* depending on the nature of the *assets*, the information available, and the facts and circumstances surrounding the *valuation*.

70. Market Approach

70.01 For classes of plant and equipment that are homogenous, e.g., cranes, construction equipment, motor vehicles (light and heavy) and earthmoving equipment, the market approach is commonly used as there may be sufficient data of recent sales of similar *assets*.

70.02 However, many types of plant and equipment are specialised, and, in these instances, care *must* be exercised in offering *valuation* using a market approach when available market data is poor or non-

existent. In such circumstances it may be appropriate to adopt either the income approach or the cost approach to the *valuation* (see IVS 103 *Valuation Approaches*, para 20.03).

70.03 When using the market approach, types of evidence will include but not limited to (see section 100, para 100.02 of this standard):

(a) actual sales of identical *assets*,

(b) actual sales of similar *assets,*

(c) asking *prices* for identical *assets*,

(d) asking *prices* for similar *assets*.

70.04 Depending upon the *asset(s)* being valued, market evidence may be considered in a variety of ways including:

(a) piecemeal (i.e., individual *asset* basis),

(b) production line (i.e., a group of *assets* together forming an operating unit),

(c) whole of plant/facility (i.e., a production facility producing X units per day),

(d) portfolio (i.e., a group of *assets* operating across a region).

70.05 Highest and best use considerations *should* always be a primary consideration for the *valuer* when considering the above types of evidence. Specifically, a portfolio of *assets* may have greater *value* if considered individually as opposed to as part of a portfolio, and vice versa. When this is the case, the *valuer must* explicitly state that this is the case and provide reasoning as to the difference in forming their conclusion.

70.06 Actual sales *must* take preference over asking *prices* and evidence available just prior to *the valuation date should* be preferred to that further from the *valuation date*.

70.07 The reliability of the evidence *should* be *weighted* according to its source. Depending upon the *asset* class considered as part of the *valuation*, evidence may be considered at a local, national or international level.

70.08 The market approach for actual sales of identical *assets* includes all forms of depreciation and obsolescence relating to an *asset* and no adjustment will be required (although such evidence is rare).

70.09 When considering actual sales or asking *prices* of similar *assets* (and asking *prices* for identical *assets*), various adjustments may need to be considered to bring the evidence in line with the subject *asset*, and may include but not limited to adjustments for:

(a) technical factors (size, capacity, rating, units of production, specification, etc),

(b) deterioration and obsolescence factors (condition, intensity of use, age, maintenance, overhaul status, operating *costs*),

(c) market-related factors (location, currency, quantities, asking *price* versus actual sales, environmental/licensing/compliance status, etc),

(d) time or *basis of value* factors (date of sale versus *valuation date*, market sale versus liquidation sale, installed as-is/where-is versus removed, etc).

70.10 In making adjustments to align with the subject *asset*, the *valuer* may use various methods including:

(a) direct adjustment (i.e., a currency or amount adjustment),

(b) indirect adjustment (i.e., to adjust the evidence by a percentage).

70.11 Evidence in an active and transparent market *should* always be preferred to an inactive and opaque market. Similarly, evidence will be more comparable when fewer adjustments are required to align with the subject *asset*. In all instances, *professional judgement must* be employed to ensure that the evidence being considered is appropriate having consideration to the nature of the *valuation* being performed.

80. Income Approach

80.01 The income approach can be used for the *valuation* of PEI when specific cash flows can be identified for the *asset* or a group of complementary *assets*, e.g., where a group of *assets* forming a process plant is operating to produce a marketable product/service or generating income from a lease.

80.02 When PEI is valued on an income approach, elements of *value* that may be attributable to *intangible assets* and to other contributory *assets should* typically be excluded (see section 20.04 of this standard, IVS 101 *Scope of Work* and IVS 210 *Intangible Assets*).

80.03 The income approach can also be used, in conjunction with other approaches, to assess the existence and quantum of economic obsolescence and/or goodwill for an *asset* or group of complementary *assets*. Care *should* be taken when using the income approach because it may be challenging to apportion aggregated cash flows relating to a group of complementary *assets* down into individual *assets* (where necessary).

80.04 When an income approach is used to value PEI, the *valuation must* consider the cash flows expected to be generated over the explicit forecast period of the *asset(s)* as well as the *value* of the *asset(s)* at the end of the explicit forecast period, often referred to as terminal value (see IVS 103 *Valuation Approaches*, Appendix A20.02–A20.22).

80.05 In accordance with IVS 103 *Valuation Approaches*, the income approach for an *asset* or group of complementary *assets* may be used where the main driver of *value* is largely driven by its income producing ability and afforded *significant weight* under the following circumstances including but not limited to:

(a) the asset or group of complementary *assets* have a high barrier to entry for market participants,

(b) when *significan*t time is required to create an *asset* or group of complementary *assets* of equal utility, whether by purchase or construction,

(c) there are potential legal or regulatory hurdles to create an *asset* or group of complementary *assets* of equal utility,

(d) a purchaser would be willing to pay a *significant* premium for the ability to use the *asset* or group of complementary *assets* immediately, due to favourable market economics and/or more immediate cashflow certainty,

(e) there is undue inconvenience, risk or other factors involved in obtaining an *asset* or group of complementary *assets* of equal utility, whether by purchase or construction.

80.06 In addition, the income approach *should* also be afforded *significant weight* for an *asset* or group of complementary *assets* under the following circumstances:

(a) the use of the market approach is either not practicable or inconclusive to value the *asset* or group of complementary *assets*,

(b) the *valuation* only needs to consider the *asset* or group of complementary *assets* as a whole, and not the *value* of individual component *assets*,

(c) the income-producing ability of the *asset* or group of complementary *assets* is set by market rates, or via contracts that are frequently marked-to-market,

(d) the cash flow generated for an *asset* or group of complementary *assets* is discrete and clearly distinguishable from other parts of the *business*,

(e) the *value* of other contributory *assets* that are inherently included within the income generated can be readily valued in isolation from the *asset* or group of complementary *assets* using other *valuation methods*.

90. Cost Approach

90.01 The cost approach is commonly adopted for PEI, particularly in the case of individual *assets* that are specialised or special-use facilities.

90.02 The first step when applying the cost method is to estimate the *cost* to a market participant of replacing the subject *asset* by reference to the lower of either reproduction or replacement cost. The replacement cost is the *cost* of obtaining an alternative *asset* of equivalent utility; this can either be a modern equivalent providing the same functionality or the *cost* of reproducing an exact replica of the subject *asset*. After concluding on a replacement cost, the *value should* be adjusted to reflect the impact on *value* of physical, functional, technological and economic obsolescence on *value*. In any event, adjustments made to any particular replacement cost *should* be designed to produce the same *cost* as the modern equivalent *asset* from an output and utility point of view.

90.03 An entity's actual *costs* incurred in the acquisition or construction of an *asset* may be appropriate for use as the replacement cost of an *asset* under certain circumstances. However, prior to using such historical *cost* information, the *valuer should* consider the following:

(a) timing of historical expenditures: an entity's actual *costs* may not be relevant, or may need to be adjusted for inflation/indexation to an equivalent as of the *valuation date*, if they were not incurred recently due to changes in market *prices*, inflation/deflation or other factors,

(b) the *basis of value*: care *must* be taken when adopting a particular market participant's own costings or profit margins, as they may not represent what typical market participants might have paid. The *valuer must* also consider the possibility that the entity's *costs* incurred may not be historical in nature due to prior purchase accounting or the purchase of used PEI *assets*. In any case, historical *costs must* be trended using appropriate indices,

(c) specific *costs* included: the *valuer must* consider all *significant costs* that have been included and whether those *costs* contribute to the value of the *asset*. For some *bases of value*, some amount of profit margin on *costs* incurred may be appropriate,

(d) non-market components: any *costs*, discounts or rebates that would not be incurred by, or available to, typical market participants *should* be excluded.

90.04 Having established the replacement cost, deductions *must* be made to reflect the physical, functional, technological and economic obsolescence as applicable (see IVS 103 *Valuation Approaches*, Appendix A30.20–A30.28).

Cost-to-Capacity Method

90.05 Under the cost-to-capacity method, the replacement cost of an *asset* with an actual or required capacity can be determined by reference to the *cost* of a similar *asset* with a different capacity.

90.06 The cost-to-capacity method is generally used in one of two ways:

(a) to estimate the replacement cost for an *asset(s)* with one capacity where the replacement costs of an *asset(s)* with a different capacity are known. For example, when the capacity of two subject *assets* could be replaced by a single *asset* with a known cost, or

(b) to estimate the replacement cost for a modern equivalent *asset* with capacity that matches foreseeable demand where the subject *asset* has excess capacity (as a means of measuring the penalty for the lack of utility to be applied as part of an economic obsolescence adjustment).

90.07 This method could be used as a primary method for determining replacement cost on a top-down basis or could be used as a check method to the replacement cost determined on a bottom-up basis. However, the existence of an exact comparison plant with the same designed capacity that resides within the same geographical area *should* always take preference over a cost-to-capacity method.

90.08 The relationship between *cost* and capacity is often not linear, so some form of exponential adjustment may also be required.

However, the *valuer should* exercise caution in performing this adjustment when large differences in capacity are being used as evidence relative to the subject *asset* as this may not lead to credible outcomes.

Trending Method

90.09 Trending is a method of estimating an asset's reproduction *cost* by applying an index (trend factor) to the *asset's* historical *cost* which reflects the *price* inflation/deflation of the *asset* over time.

90.10 Historical *cost* comprises the expenditure incurred in acquiring the *asset* when it was first placed into service by its first owner. This *should* be distinguished from original *cost*, which is the actual *cost* of an *asset* when acquired by its present owner, who may not be the first owner and who may have purchased the *asset* at a *price* greater or less than the historical *cost*.

90.11 Indices may be obtained from statistical offices or similar government agencies, institutions or research organisations. Selection of the most appropriate indices is crucial when using the trending method.

90.12 Whilst the application of a trending method (often termed an indirect method which involves the application of indexing) can be an appropriate way to determine replacement *cost* when using the cost approach, care *should* be taken in relation to the following:

(a) trending *should* not be applied to anything other than a previously determined direct replacement cost or the historical *cost* (the *cost* of an *asset* when it was first placed into service by its first owner),

(b) historical *costs* represent a range of direct and indirect *costs* (i.e., equipment, labour, delivery, electrical, foundations, buildings, IT, etc) that might not correlate to a certain index,

(c) trending long-dated historical *costs* can create erroneous and anomalous outcomes because of the various factors that impact indices over time,

(d) using an index/trend that is derived from different *jurisdictions* to the subject *asset* can create erroneous and anomalous outcomes because of the various factors that impact indices in differing *jurisdictions*,

(e) trending historical *costs* using a local index/trend for *assets* that were sourced in a foreign *jurisdiction* where there have been exchange rate movements over time.

90.13 In all instances, *professional judgement* is required to ensure that the trending method to determine replacement cost as part of a cost approach is appropriate having consideration to the nature of the *valuation* being performed. If it is likely to lead to erroneous or anomalous *valuation* outcomes, the application of alternate methods to determine replacement cost *must* be utilised (i.e., a direct approach to estimating replacement cost).

100. Data and Inputs

100.01 In accordance with IVS 104 *Data and Inputs*, the *valuer must* maximise the characteristics of relevant and *observable data* to the degree that it is possible.

100.02 In addition to the requirements contained within IVS 104 *Data and Inputs* there is the following hierarchy of comparable evidence, which *should* be followed for PEI *valuations*:

(a) direct comparable evidence,

(b) indirect comparable evidence,

(c) general market data,

(d) other sources.

100.03 When applying the hierarchy of comparable evidence, the *valuer must* ensure that the characteristics of suitable *data* and *inputs* contained within IVS 104 *Data and Inputs* are fully applied.

100.04 The *inputs* selected *must* be consistent with the models being used to value the *asset* (see IVS 104 *Data and Inputs*, para 40.01).

100.05 The selection, source and use of the *inputs must* be explained, justified, and documented.

100.06 In accordance with IVS 104 *Data and Inputs:* Appendix, the *valuer should* consider *significant sustainability* considerations and *ESG* factors in determining the *value* of plant, equipment and infrastructure.

110. Valuation Models

110.01 In accordance with IVS 105 *Valuation Models*, the *valuer must* maximise as many of the characteristics of suitable *valuation models*, as possible.

110.02 *Valuation models must* be suitable for the *intended use* of the *valuation* and consistent with suitable *inputs*.

120. Documentation and Reporting

120.01 In addition to the requirements in IVS 106 *Documentation and Reporting*, a *valuation* report *must* be issued for a *valuation* of PEI.

120.02 The report *must* also document the effect on the reported *value* of any associated *tangible* or *intangible assets* excluded from the actual or assumed transaction scenario.

120.03 Furthermore the *valuer* s*hould* be explicit within the *valuation* report about the extent of inspection in line with the agreed scope of work. If no inspection is undertaken this *should* be explicitly stated.

120.04 Moreover, in addition to the requirements contained within IVS 106 *Documentation and Reporting*, a *valuation* review report *must* be issued for a *valuation review,* and the *valuation* review report *must* state whether the review is a *valuation process review* or a *value review*.

130. Special Considerations for Plant, Equipment and Infrastructure

130.01 The following section addresses a non-exhaustive list of topics relevant to the *valuation* of PEI.

130.02 Allocation of value

130.03 Further to IVS 106 *Documentation and Report*, section 40 and this standard, where a group of *assets* have been valued as part of a portfolio, but allocated on an individual basis, the *valuer must* explicitly state that this is the case and provide rationale as to their allocation methodology.

IVS 400 Real Property Interests

10. Overview

10.01 The principles contained in the General Standards apply to *valuations* of real property interests.

10.02 This standard includes additional requirements and specific examples of how the General Standards apply to *valuations* to which this standard applies. *Valuations* of real property interests *must* also follow the applicable standard for that type of *asset* and/or *liability* (see IVS 300 *Plant, Equipment and Infrastructure*).

20. Introduction

20.01 Real property interests are normally defined by state or the law of individual *jurisdictions* and are often regulated by national or local legislation. In some instances, legitimate individual, communal/community and/or collective rights over land and buildings are held in an informal, traditional, undocumented and unregistered manner. Before undertaking a *valuation* of a real property interest, the *valuer must* understand the relevant legal framework that affects the interest being valued.

20.02 A real property interest is a right of ownership, control, use or occupation of land and buildings. A real property interest includes informal tenure rights for communal/community and/or collective or tribal land and urban/rural informal settlements which can take the form of possession, occupation and rights to use.

20.03 There are three main types of interest:

(a) the superior interest in any defined area of land. The owner(s) of this interest has an absolute right of possession and control of the land and any buildings upon it in perpetuity, subject only to any subordinate interests and any statutory or other legally enforceable constraints,

(b) a subordinate interest that normally gives the holder rights of exclusive possession and control of a defined area of land or buildings for a defined period, e.g., under the terms of a lease contract, and/or

(c) a right to use land or buildings but without a right of exclusive possession or control, e.g., a right to pass over land or to use it only for a specified activity.

20.04 *Intangible assets* fall outside the classification of real property *assets* and/ or *liabilities*. However, an *intangible asset* may be associated with, and have a material impact on, the cash flow associated with real property *assets*. It is therefore essential to be clear in the scope of work precisely what the *intended use* of the *valuation* is to include or exclude. When there is an *intangible asset* component to a *valuation*, the *valuer should* also follow IVS 210 *Intangible Assets*.

20.05 Although different words and terms are used to describe these types of real property interest in different *jurisdictions*, the concepts of an unlimited absolute right of ownership, an exclusive interest for a limited period or a non-exclusive right for a specified *intended use* are common to most. The immovability of land and buildings means that it is the right that a party holds that is transferred in an exchange, not the physical land and buildings. The *value*, therefore, attaches to the legal interest rather than to the physical land and buildings.

20.06 *Valuations* of real property interests are often required for different *intended uses* such as, but not limited to secured lending, sales and purchases, taxation, litigation, compensation, insolvency proceedings and financial reporting.

Additional Considerations for Development Property

20.07 Development Properties are a subset of Real Property Interests

20.08 In the context of this standard, development properties are defined as real property interests where development is required to achieve the highest and best use, or where improvements are either being contemplated or are in progress at the *valuation date* and may include:

(a) the construction of buildings,

(b) previously undeveloped land which is being provided with infrastructure (see *IVS 300 Plant, Equipment and Infrastructure*),

(c) the redevelopment of previously developed land,

(d) the improvement or alteration of existing buildings or structures,

(e) undeveloped land,

(f) land allocated for development in a statutory plan or by the permission of the relevant authorities, and

(g) land allocated for higher *value* uses or higher density in a statutory plan or by the permission of the relevant authorities.

30. Valuation Framework

30.01 In accordance with IVS 100 *Valuation Framework*, the *valuer must* comply with the Valuer Principles (see IVS 100 *Valuation Framework*, section 10).

40. Scope of Work

40.01 To comply with the requirement to identify the *asset* and/or *liability* to be valued in IVS 101 *Scope of Work*, para 20.01 (a) the following matters *must* be included:

(a) a description of the real property interest to be valued, and

(b) identification of any superior or subordinate interests or right to use that affect the interest to be valued.

40.02 In accordance with requirements contained within IVS 101 *Scope of Work*, sections 20 and 30, investigations made during the course of a *valuation* engagement *must* be appropriate for the *intended use* of the *valuation* engagement and the *basis(es) of value*. In the case of a *valuation review* the scope of work *must* state whether the review is a *valuation process review* or a *value review*.

40.03 Sufficient investigations and evidence *must* be assembled by means such as inspection, inquiry, research, computation or analysis to ensure that the *valuation* is properly supported. When determining the extent of investigations and evidence necessary, *professional judgement* is required to ensure it is fit for the purpose of the *valuation*.

40.04 When considering 40.02 to 40.03, the *valuer must* state the extent of physical inspection that is to be undertaken (where applicable) within their scope of work.

40.05 In some instances, the *valuer* may carry out a physical inspection of a sample of *asset(s)*. This *must* be stated within the scope of work.

40.06 If no physical inspection is to be undertaken this *must* be stated within the scope of work.

40.07 When a *valuation* engagement involves reliance on information supplied by a party other than the *valuer*, consideration *should* be given as to whether the information is credible or that the information may otherwise be relied upon without adversely affecting the credibility of the *valuation*. *Significant inputs* provided to the *valuer* (e.g., by management/owners) *should* be considered, investigated and/or corroborated. In cases where credibility or reliability of information supplied cannot be supported, consideration *should* be given as to whether or how such information is used (see IVS 101 *Scope of Work*, para 20.01 (j)).

40.08 In considering the credibility and reliability of information provided, the *valuer should* consider matters such as:

(a) the *intended use* of the *valuation*,

(b) the significance of the information to the *valuation* conclusion,

(c) the expertise of the source in relation to the subject matter, and

(d) whether the source is independent of either the subject *asset* and/or the recipient of the *valuation* (see IVS 101 *Scope of Work*, para 20.01 (a)).

40.09 The *intended use* of the *valuation*, the *basis of value*, the extent and limits on the investigations and any sources of information that may be relied upon, are part of the *valuation's* scope of work that *must* be communicated to all parties to the *valuation* (see IVS 101 *Scope of Work*).

40.10 If, during the course of an engagement, it becomes clear that the investigations or limitations included in the scope of work will not result in a credible *valuation*, or information to be provided by third parties is either unavailable or inadequate, or limitations on investigations such as inspections are so substantial that the *valuer* cannot sufficiently evaluate the *inputs* and assumptions, it will not result in a *valuation* outcome that is adequate for the purpose of the *valuation*, the *valuation must* explicitly state that the *valuation* is not in compliance with IVS (see IVS 100 *Valuation Framework*, section 40 and IVS 101 *Scope of Work*, para 20.03).

40.11 In addition to the requirements to state the extent of the investigation and the nature and source of the information to be relied upon in IVS 101 *Scope of Work*, the following matters *should* be considered, where applicable:

(a) the evidence, if available, required to identify the real property interest and any relevant related interests,

(b) responsibility for information on the site area, site characteristics (e.g., ground condition), building characteristics or building floor areas,

(c) responsibility for information on the area, characteristics (e.g., soil conditions) and productivity generating attributes of land (e.g., fertility of the soil, plantation area),

(d) responsibility for confirming the specification and condition of any building,

(e) responsibility for confirming the specification and condition of the plantation, vegetation, forest or crop,

(f) responsibility for confirming the quantity and quality of reserves and any extraction and remedial measures post extraction,

(g) the extent of investigation into the nature, specification and adequacy of services and facilities,

(h) responsibility for the identification of actual or potential environmental factors, and

(i) legal permissions or restrictions on the use of the property and any buildings, as well as any expected or potential changes to legal permissions and restriction.

40.12 Typical examples of special assumptions that need to be agreed and confirmed to comply with IVS 101 Scope of Work, para 20.03 (k) and IVS 102 Bases of Value, section 60 include but are not limited to:

(a) that a defined physical change had occurred, e.g., a proposed building is valued as if complete at the *valuation date*,

(b) that there had been a change in the status of the property, e.g., a vacant building had been leased, or a leased building had become vacant at the *valuation date*,

(c) that the interest is being valued without taking into account other existing interests,

(d) that the property is free from contamination or other environmental risks,

(e) that the economic activity will continue into perpetuity, and

(f) that planning permission will be granted for the proposed change of use.

50. Bases of Value

50.01 In accordance with IVS 102 *Bases of Value*, the *valuer must* select the appropriate *basis(es) of value* for the *intended use* when valuing real property interests.

50.02 Under most *bases of value*, the *valuer must* consider the highest and best use of the real property, which may differ from its current use (see IVS 102 *Bases of Value*, Appendix A90–A120). This assessment is particularly important to real property interests which can be changed from one use to another or that have development potential.

50.03 In addition to the requirements contained within IVS 106 *Documentation and Reporting*, section 40, on allocation of *value*, if the sum of the value of the individually allocated components differs from the *value* of the *assets* and/or *liabilities* on an aggregate basis, then the *valuer should* expressly document the primary reason(s) for the difference.

Additional Considerations for Development Property

50.04 In considering the *value* of a development property, regard *should* be given to the probability that any contracts in place, e.g., for construction or for the sale or leasing of the completed project, may become void or voidable in the event of one of the parties being the

subject of formal insolvency proceedings. Further regard *should* be given to any contractual obligations that may have a material impact on *value*. Therefore, it may be appropriate to highlight the risk to an *intended user* caused by a prospective buyer of the property not having the benefit of existing building contracts and/or pre-leases, and pre-sales and any associated warrantees and guarantees in the event of a default by the developer.

50.05 Frequently it will be either impracticable or impossible to verify every feature of a development property which could have an impact on potential future development, such as where ground conditions have yet to be investigated. When this is the case, it may be appropriate to make specific assumptions (e.g., that there are no abnormal ground conditions that would result in *significantly* increased *costs*). If this was an assumption that a participant would not make, it would need to be presented as a special assumption.

50.06 In situations where there has been a change in the market since a project was originally conceived, a project under construction may no longer represent the highest and best use of the land. In such cases, the *costs* to complete the project originally proposed may be irrelevant as a buyer in the market would either demolish any partially completed structures or adapt them for an alternative project. The *value* of the development property under construction would need to reflect the current *value* of the alternative project and the *costs* and risks associated with completing that project.

50.07 For some development properties, the property is closely tied to a specific use or *business*/trading activity, or a special assumption is made that the completed property will trade at specified and sustainable levels. In both cases, the *valuer must*, as appropriate, also comply with the requirements of IVS 200 *Businesses and Business Interests* and, where applicable, IVS 210 *Intangible Assets*.

60. Valuation Approaches

60.01 There are three main *valuation approaches* in relation to the *valuation* of real property interests. These are:

(a) the market approach (see section 70),

(b) the income approach (see section 80), and

(c) the cost approach (see section 90).

60.02 When selecting a *valuation approach* and *valuation method*, in addition to the requirements of this standard, the *valuer must* follow the requirements of IVS (see 103 *Valuation Approaches* including para 10.03 and 10.04).

Additional Considerations for Development Property

60.03 The *valuation approach* to be used will depend on the required *basis of value* as well as specific facts and circumstances, e.g., the level of recent transactions, the stage of development of the project, and movements in property markets since the project started and *should* always be that which is most appropriate to those circumstances. Therefore, the exercise of *professional judgement* in the selection of the most suitable approach is critical.

60.04 To demonstrate an appreciation of the risks involved in valuing development property, the *valuer should* apply a minimum of two appropriate and recognised methods to valuing development property for each *valuation* project, as this is an area where there is often "insufficient factual or observable *inputs* for a single method to produce a reliable conclusion" (see IVS 103 *Valuation Approaches* para 10.06).

60.05 The *valuer must* be able to justify the selection of the *valuation approach(es)* and *should* provide an "as is" (existing stage of development) and an "as proposed" (completed development) *value* for the development property and record the process undertaken and a rationale for the *value.*

70. Market Approach

70.01 Real property interests are generally heterogeneous (i.e., with different characteristics). Even if the land and buildings have identical physical characteristics to others being exchanged in the market, the location will be different. Notwithstanding these dissimilarities, the market approach is commonly applied for the *valuation* of real property interests.

70.02 In order to compare the subject of the *valuation* with the *price* of other real property interests, the *valuer should* adopt generally accepted and appropriate units of comparison that are considered by participants, dependent upon the type of *asset* and/or *liability* being valued. Units of comparison that are commonly used might include:

(a) *price* per square metre (or per square foot) of a building or per hectare (or per acre) for land,

(b) *price* per room, and

(c) *price* per unit of output (e.g., megawatt, crop yields).

70.03 A unit of comparison is only useful when it is consistently selected and applied to the subject property and the comparable properties in each analysis. To the extent possible, any unit of comparison used *should* be one commonly used by participants in the appropriate market.

70.04 The extent of reliance that can be applied to any comparable *price data* in the *valuation* is determined by comparing various characteristics of the property and transactions from which the *data* is derived with the property being valued. Differences between the following *should* be considered in accordance with IVS 103 *Valuation Approaches,* Appendix A10.01-10.08. Specific differences that *should* be considered in valuing real property interests include, but are not limited to:

(a) the type of interest providing the *price* evidence and the type of interest being valued,

(b) the respective locations,

(c) the respective quality of the land,

(d) the age and specification of the improvements,

(e) the permitted use or zoning at each property,

(f) the circumstances under which the *price* was determined and the *basis of value* required,

(g) the effective date of the *price* evidence and the *valuation date*, and

(h) market conditions at the time of the relevant transactions and how they differ from conditions at the *valuation date*.

Additional Considerations for Development Property

70.05 Some types of development property can be sufficiently homogenous and frequently exchanged in a market for there to be sufficient *data* from recent sales to use as a direct comparison where a *valuation* is required (see section 100 below).

70.06 In most markets, the market approach may have limitations for larger or more complex development property, or smaller properties where the proposed improvements are heterogeneous. This is because the number and extent of the variables between different properties make direct comparisons of all variables inapplicable, although correctly adjusted market evidence (see IVS 103 *Valuation Approaches,* section 20) may be used as the basis for several of variables within the *valuation*.

70.07 For development property where work on the improvements has commenced but is incomplete, the application of the market approach is even more problematic. Such properties are rarely transferred between participants in their partially completed state, except as either part of a transfer of the owning entity, or where the seller is either insolvent or facing insolvency and therefore unable to complete the project. Even in the unlikely event of there being evidence of a transfer of another partially completed development property close to the *valuation date*, the degree to which work has been completed would almost certainly differ, even if the properties were otherwise similar.

70.08 The market approach may also be appropriate for establishing the *value* of a completed property as one of the *inputs* required under the residual method, which is explained more fully in section 130 on the residual method.

80. Income Approach

80.01 Various methods are used to indicate *value* under the general heading of the income approach, all of which share the common characteristic that the *value* is based upon an actual or estimated income that either is, or could be, generated by an owner of the interest. In the case of an investment property, that income could be in the form of rent in an owner-occupied building, it could be an assumed rent (or rent saved) based on what it would cost the owner to lease equivalent space.

80.02 For some real property interests, the income-generating ability of the property is closely tied to a specific use or *business*/trading activity (for example, cinemas, retirement or care homes, clinics, hotels, etc). Where a building is only suitable for one type of trading activity, the income is often related to the actual or potential cash flows that would accrue to the owner of that building from the trading activity. The use of a property's trading potential to indicate its *value* is often referred to as the "profits method" (see following para 80.03).

80.03 When the potential income used in the income approach represents cash flow from a *business*/trading activity (rather than cash flow related to rent, maintenance and other real property-specific *costs*) and includes *intangible assets* then this is no longer solely a real property interest *valuation* and the *valuer should* also comply as appropriate with the requirements of IVS 200 *Businesses and Business Interests* and, where applicable, IVS 210 *Intangible Assets*.

80.04 For real property interests, various forms of discounted cash flow models may be used. These vary in detail but share the basic characteristic that the cash flow for a defined future period is adjusted to a present value using a *discount rate*. The sum of the present values for the individual periods represents an estimate of the capital value. The *discount rate* in a discounted cash flow model will be based on the time *cost* of money and the risks and rewards of the income stream in question.

80.05 Further information on the derivation of *discount rates* is included in IVS 103 *Valuation Approaches,* Appendix A20.29-A20.40. The development of a yield or *discount rate should* be influenced by the objective of the *valuation*. For example:

(a) the *discount rate* may be derived from observation of the returns implicit in the *price* paid for real property interests traded in the market between participants or from hypothetical participants' required rate of return. When a *discount rate* is based on an analysis of market transactions, the *valuer should* also follow the guidance contained in IVS 103 *Valuation Approaches*, Appendix A10.07 and A10.08, and

(b) if the objective of the *valuation* is to establish the *investment value* to a particular owner or potential owner based on their own investment criteria, the rate used may reflect their required rate of return or their weighted-average-cost-of-capital.

80.06 An appropriate *discount rate* may also be built up from a typical "risk-free" return adjusted for the additional risks and opportunities specific to the particular real property interest.

Additional Considerations for Development Property

80.07 Establishing the *value* of a development property may involve the use of a cash flow model in some markets (see IVS 103 Appendices paras A20.02 -A20.27 of this standard).

80.08 The income approach may also be appropriate for establishing the *value* of a completed property as one of the *inputs* required under the residual method, which is explained more fully in the section on the residual method. (see paras 130.09 – 130.48 of this standard.

90. Cost Approach

90.01 In applying the cost approach, the *valuer must* follow the guidance contained in IVS 103 *Valuation Approaches,* Appendix A30.

90.02 This approach is generally applied to the *valuation* of real property interests through the depreciated replacement cost method (see IVS 103 *Valuation Approaches*, Appendix A30).

90.03 The cost approach may be used as the primary approach when there is either no evidence of transaction *prices* for similar property or no identifiable actual or notional income stream that would accrue to the owner of the relevant interest.

90.04 In some cases, even when evidence of market transaction *prices* or an identifiable income stream is available, the cost approach may be used as a secondary or corroborating approach.

90.05 The first step requires a replacement cost to be calculated. This is normally the *cost* of replacing the property with a modern equivalent at the relevant *valuation date*. An exception is where an equivalent property would need to be a replica of the subject property in order to provide a participant with the same utility, in which case the replacement cost would be that of reproducing or replicating the subject building rather than replacing it with a modern equivalent. The replacement cost *must* reflect all incidental *costs*, as appropriate, such as the *value* of the land, infrastructure, design fees, finance *costs* and developer profit that would be incurred by a participant in creating an equivalent *asset*.

90.06 The *cost* of the modern equivalent *must* then, as appropriate, be subject to adjustment for physical, functional, technological and economic obsolescence (see IVS 103 *Valuation Approaches* Appendix A30). The objective of an adjustment for obsolescence is to estimate how much less valuable the subject property might, or would be, to a potential buyer than the modern equivalent. Obsolescence considers the physical condition, functionality and economic utility of the subject property compared with the modern equivalent.

Additional Considerations for Development Property

90.07 Establishing development costs is a key component of the residual method. (see paras 130.39 to 130.35)

90.08 The cost approach may also exclusively be used as a means of indicating the *value* of development property such as a proposed development of a building or other structure and infrastructure for which there is no active market on completion.

90.09 The cost approach is based on the economic principle that a buyer will pay no more for an *asset* than the amount to create an *asset* of equal utility. To apply this principle to development property, the *valuer must* consider the *cost* that a prospective buyer would incur in acquiring a similar *asset* with the potential to earn a similar profit from development as could be obtained from development of the subject property. However, unless there are unusual circumstances affecting the subject development property, the process of analysing a proposed development and determining the anticipated *costs* for a hypothetical alternative effectively replicates either the market approach or the residual method as described above, which can be applied directly to the subject property.

90.10 Another difficulty in applying the cost approach to development property is in determining the profit level, which is its "utility" to a prospective buyer. Although a developer may have a target profit at the commencement of a project, the actual profit is normally determined by the *value* of the property at completion. Moreover, as the property approaches completion, some of the risks associated with development are likely to reduce, which may impact on the required return of a buyer. Unless a fixed *price* has been agreed, profit is not determined by the *costs* incurred in acquiring the land and undertaking the improvements.

100. Data and Inputs

100.01 In accordance with IVS 104 *Data and Inputs*, the *valuer must* maximise the use of relevant and *observable data* to the degree that it is possible.

100.02 In addition to the requirements contained within IVS 104 *Data and Inputs* there is the following hierarchy of comparable evidence, which *should* be followed for real property interest *valuations*:

(a) direct comparable evidence,

(b) indirect comparable evidence,

(c) general market data,

(d) other sources.

100.03 When applying the hierarchy of comparable evidence, the *valuer must* ensure that the characteristics of suitable *data* and *inputs* contained within IVS 104 *Data and Inputs* are fully applied.

100.04 The *inputs* selected *must* be consistent with the models being used to value the *asset* and/or *liability* (see IVS 104 *Data and Inputs*, section 40).

100.05 The selection, source and use of *significant inputs must* be explained, justified, and documented.

100.06 In accordance with IVS 104 *Data and Inputs: Appendix,* the *valuer should* consider *significant sustainability considerations and ESG* factors in determining the *value* of real property interests.

110. Valuation Models

110.01 In accordance with IVS 105 *Valuation Models*, the *valuer must* apply *professional judgement* to balance the characteristics of a *valuation model* in order to choose an appropriate *valuation model*.

110.02 *Valuation models must* be suitable for the *intended use* of the *valuation* and consistent with suitable *inputs*.

120. Documentation and Reporting

120.01 In addition to requirements within IVS 106 *Documentation and Reporting*, a *valuation* report *must* be issued for a *valuation.*

120.02 Furthermore the *valuer should* be explicit about the extent of inspection in line with the agreed scope of work. If no inspection is undertaken this *should* be explicitly stated.

120.03 Moreover, in addition to the requirements contained within IVS 106 *Documentation and Reporting*, section 40, a *valuation review* report *must* be issued for a *valuation review,* and the *valuation review* report *must* state whether the review is a *valuation process review* or a *value review*.

130. Special Considerations for Real Property Interests

130.01 The following sections address a non-exhaustive list of topics relevant to the *valuation* of real property interests.

Hierarchy of Interests

130.02 The different types of real property interests are not mutually exclusive. For example, a superior interest may be subject to one or more subordinate interests. The owner of the absolute interest may grant a lease interest in respect of part or all of his interest. Lease interests granted directly by the owner of the absolute interest are commonly known as “head lease” interests. Unless prohibited by the

terms of the lease contract, the holder of a head lease interest can grant a lease of part or all of that interest to a third party, which is known as a sub-lease interest. A sub-lease interest will always be shorter than, or coterminous with, the head lease out of which it is created.

130.03 These property interests will have their own characteristics, as illustrated in the following examples:

(a) Although an absolute interest provides outright ownership in perpetuity, it may be subject to the effect of subordinate interests. These subordinate interests could include leases, restrictions imposed by a previous owner or restrictions imposed by statute.

(b) A lease interest will be for a defined period, at the end of which the property reverts to the holder of the superior interest out of which it was created. The lease contract will normally impose obligations on the lessee, e.g., the payment of rent and other expenses. It may also impose conditions or restrictions, such as in the way the property may be used or on any transfer of the interest to a third party.

(c) A right of use may be held in perpetuity or may be for a defined period. The right may be dependent on the holder making payments or complying with certain other conditions.

130.04 When valuing a real property interest, it is therefore necessary to identify the nature of the rights accruing to the holder of that interest and reflect any constraints or encumbrances imposed by the existence of other interests in the same property. The sum of the individual *values* of various different interests in the same property will frequently differ from the *value* of the unencumbered superior interest.

Additional Considerations for Development Property

130.05 *Valuations* of development property may be required for different *intended uses.* It is the *valuer's* responsibility to understand the *intended use*. A non-exhaustive list of examples of circumstances that *should* require a *valuation* of a development property includes but is not limited to:

(a) when establishing whether proposed projects are financially feasible,

(b) as part of general consulting and transactional support engagements for acquisition and secured lending,

(c) for tax reporting *purposes*, development *valuations* are frequently needed for ad valorem taxation analyses,

(d) for litigation requiring *valuation* analysis in circumstances such as shareholder disputes and damage calculations,

(e) for financial reporting *purposes*, *valuation* of a development property is often required in connection with accounting for *business* combinations, asset acquisitions and sales, and impairment analysis, and

(f) for other statutory or legal events that may require the *valuation* of development property such as compulsory purchases.

130.06 When valuing development property, the *valuer must* follow the applicable standard for that type of *asset* and/or *liability* (see IVS 300 Plant, Equipment and Infrastructure).

130.07 The *value* of a development property can be very sensitive to changes in assumptions or projections concerning the income or revenue to be derived from the completed project or any of the development costs that will be incurred. This remains the case regardless of the method or methods used or however diligently the various *inputs* are researched in relation to the *valuation date* (see IVS *104 Data and Inputs*).

130.08 This sensitivity also applies to the impact of *significant* changes in either the *costs* of the project or the *value* on completion. If the *valuation* is required for an *intended use* where *significant* changes in *value* over the duration of construction project may be of concern to the user (e.g., where the *valuation* is for loan security or to establish a project's viability), the *valuer must* highlight the potentially disproportionate effect of possible changes in either the construction *costs* or end value on the profitability of the project and the *value* of the partially completed property. A sensitivity analysis may be useful for this *intended use* provided it is accompanied by a suitable explanation.

Residual Method for Development Property

130.09 The residual method is normally a combination of market approach, income approach and cost approach.

130.10 The market approach and/or the income approach may be appropriate for estimating the gross development value of a property as one of the *inputs* required under the residual method.

130.11 The residual method is so called because it indicates the residual amount after deducting all known or anticipated *costs* required to complete the development from the anticipated *value* of the project when completed after consideration of the risks associated with completion of the project. This is known as the residual value.

130.12 The residual value can be highly sensitive to relatively small changes in the forecast cash flows, and the practitioner *should* provide separate sensitivity analyses for each *significant* factor.

130.13 Caution is required in the use of this method because of the sensitivity of the result to changes in many of the *inputs*, which may not be precisely known on the *valuation date* and therefore have to be estimated with the use of assumptions.

130.14 When valuing a development property, the models used to apply the residual method vary considerably in complexity and sophistication, with the more complex models allowing for greater granularity of *inputs*, multiple development phases and sophisticated analytical tools. The most suitable model will depend on the size, duration and complexity of the proposed development.

130.15 In applying the residual method, the *valuer should* consider and evaluate the reasonableness and reliability of the following:

(a) the source of information on any proposed building or structure, e.g., any plans and specification that are to be relied on in the *valuation*,

(b) any source of information on the construction and other *costs* that will be incurred in completing the project and which will be used in the *valuation*, and

(c) any source of information on the estimation of yield/*discount rate* that will be used in the *valuation*.

130.16 The following basic elements *should* be considered in the application of the residual method (see IVS 104 *Data and Inputs*):

(a) Proposed development,

(b) Development timetable,

(c) completed property *value*,

(d) construction *costs*,

(e) professional fees,

(f) statutory fees,

(g) marketing *costs*,

(h) finance *costs*,

(i) development profit (on both land and building),

(j) *discount rate*, and

(k) contractual obligations.

A. Proposed Development

130.17 In the *valuation* of development property, it is necessary to establish the suitability of the real property in question for the proposed development. Some matters may be within the *valuer's* knowledge and experience, but some may require information or reports from other *specialists*. Matters that typically need to be considered for specific investigation when undertaking a *valuation* of a development property before a project commences include:

(a) whether or not there is a market for the proposed development,

(b) whether the proposed development of the highest and best use of the property in the current market,

(c) whether there are other non-financial obligations that need to be considered (political, environmental or social criteria),

(d) legal permissions or zoning, including any conditions or constraints on permitted development,

(e) limitations, encumbrances or conditions imposed on the relevant interest by private contract,

(f) rights of access to public roads or other public areas,

(g) geotechnical conditions, including potential for contamination or other environmental risks,

(h) the availability of, and requirements to, provide or improve necessary services, e.g., water, drainage, sewerage and power,

(i) the need for any off-site infrastructure improvements and the rights required to undertake this work,

(j) any archaeological constraints or the need for archaeological investigations,

(k) *sustainability* and any *client* requirements in relation to green buildings,

(l) economic conditions and trends and their potential impact on *costs* and receipts during the development period,

(m) current and projected supply and demand for the proposed future uses,

(n) the availability and *cost* of funding,

(o) the expected time required to deal with preparatory matters prior to starting work, for the completion of the work and, if appropriate, to rent or sell the completed property, and

(p) any other risks associated with the proposed development.

130.18 Where a project is in progress, additional enquires or investigations will typically be needed into the contracts in place for the design of the project, for its construction and for supervision of the construction.

B. Development Timetable

130.19 The duration of the project from the *valuation date* to the expected date of completion of the project needs to be considered, together with the phasing of all cash outflows for construction *costs*, consultants' fees, etc.

130.20 If there is no sale agreement in place for the relevant interest in the development property following practical completion, an estimate *should* be made of the marketing period that might typically be required following completion of construction until a sale is achieved.

130.21 If the property is to be held for investment after completion and if there are no pre-leasing agreements, the time required to reach stabilised occupancy needs to be considered (i.e., the period required to reach a realistic long-term occupancy level). For a project where there will be individual letting units, the stabilised occupancy levels may be less than 100 percent if market experience indicates that a number of units may be expected to always be vacant, and allowance *should* be considered for *costs* incurred by the owner during this period such as additional marketing *costs*, incentives, maintenance and/or unrecoverable service charges.

C. Completed Property Value

130.22 The first step requires an estimate of the *value* of the relevant interest in the real property following notional completion of the development project, which *should* be developed in accordance with IVS 103 *Valuation Approaches*.

130.23 Regardless of the methods adopted under either the market or income approach, the *valuer must* adopt one of the two basic underlying assumptions:

(a) the estimated *value* on completion is based on *values* that are current on the *valuation date* on the special assumption the project had already been completed in accordance with the defined plans and specification, or

(b) the estimated *value* on completion is based on the special assumption that the project will be completed in accordance with the defined plans as of the *valuation date* and specification on the anticipated date of completion.

130.24 Market practice and availability of relevant *data* and *inputs should* determine which of these assumptions is more appropriate. However, it is important that there is clarity as to whether current or projected values are being used.

130.25 If estimated gross development value is used, it *should* be made clear that these are based on special assumptions that a participant would make based on information available on the *valuation date*.

130.26 It is also important that care is taken to ensure that consistent assumptions are used throughout the residual value calculation, i.e., if current *values* are used then the *costs should* also be current and *discount rates* derived from analysis of current *prices*.

130.27 If there is a pre-sale or pre-lease agreement in place that is conditional on the project, or a relevant part, being completed, this *should* be reflected in the *valuation* of the completed property.

130.28 It would also be appropriate to establish if these agreements would be assignable to a purchaser of the relevant interest in the development property prior to the completion of the project.

D. Construction Costs

130.29 The *costs* of all work required at the *valuation date* to complete the project to the defined specification need to be identified. Where no work has started, this will include any preparatory work required prior to the main building contract, such as the *costs* of obtaining statutory permissions, demolition or off-site enabling work.

130.30 Where work has commenced, or is about to commence, there will normally be a contract or contracts in place that can provide the independent confirmation of *cost*. However, if there are no contracts in place, or if the actual contract costs are not typical of those that would be agreed in the market on the *valuation date*, then it may be necessary to estimate these *costs* reflecting the reasonable expectation of participants on the *valuation date* of the probable *costs*.

130.31 The benefit of any work carried out prior to the *valuation date* will be reflected in the *value* but will not determine that *value*. Similarly, previous payments under the actual building contract for work completed prior to the *valuation date* are not relevant to current *value*.

130.32 In contrast, if payments under a building contract are geared to the work completed, the sums remaining to be paid for work not yet undertaken at the *valuation date* may be the best evidence of the construction *costs* required to complete the work.

130.33 However, contractual *costs* may include special requirements of a specific end user and therefore may not reflect the general requirements of participants.

130.34 Moreover, it may be more appropriate to reflect the *cost* of engaging a new contractor to complete the outstanding work.

130.35 *Professional judgement* is required when considering projected *costs* and income through all stages of the development.

E. Professional Fees

130.36 These include legal and professional *costs* that would be reasonably incurred by a participant at various stages through the completion of the project.

F. Statutory fees

130.37 These are the fees associated with getting necessary permissions and approvals, which include but are not limited to building approvals, environmental clearance and fire safety.

G. Marketing Costs

130.38 If there is no identified buyer or lessee for the completed project, it will normally be appropriate to allow for the *costs* associated with appropriate marketing, and for any leasing commissions and professional fees incurred for marketing not included under para 100.36 of this standard.

H. Finance Costs

130.39 These represent the *cost* of finance for the project from the *valuation date* through to the completion of the project, including any period required after physical completion to either sell the interest or achieve stabilised occupancy. As the *intended use*r may perceive the risks during construction to differ substantially from the risks following completion of construction, the finance *cost* during each period may also need to be considered separately. Even if an entity is intending to self-fund the project, an allowance *should* be made for interest at a rate which would be obtainable by a participant for borrowing to fund the completion of the project on the *valuation date*.

I. Development Profit

130.40 Allowance *should* be made for development profit, or the return that would be required by a buyer of the development property in the marketplace for taking on the risks associated with completion of the project on the *valuation date*. This will include the risks involved in achieving the anticipated income or capital value following physical completion of the project. Development profit *should* be considered for both land as well as building(s).

130.41 This target profit can be expressed as a lump sum, a percentage return on the *costs* incurred on purchase of land as well as construction of the building/structure or a percentage of the anticipated *value* of the project on completion or a rate of return. Market practice for the type of property in question will normally indicate the most appropriate option. The amount of profit that would be required will reflect the level of risk that would be perceived by a prospective buyer on the *valuation date* and will vary according to factors such as:

(a) the stage which the project has reached on the *valuation date*. A project which is nearing completion will normally be viewed as being less risky than one at an early stage, with the exception of situations where a party to the development is insolvent,

(b) whether a buyer or lessee has been secured for the completed project, and

(c) the size and anticipated remaining duration of the project. The longer the project, the greater the risk caused by exposure to fluctuations in future *costs* and receipts and changing economic conditions generally.

130.42 The following are examples of factors that *should* typically need to be considered in an assessment of the relative risks associated with the completion of a development project:

(a) unforeseen complications that increase construction *costs*,

(b) potential for contract delays caused by adverse weather or other matters outside of the developer's control,

(c) delays in obtaining statutory approvals,

(d) supplier failures,

(e) entitlement risk and changes in entitlements over the development period,

(f) changes in *environmental, social and governance* requirements in relation to the proposed development,

(g) regulatory changes,

(h) delays in finding a buyer or lessee,

(i) delays in obtaining funding for the project, and

(j) discovery of irregularities in documentation such as deed or land titling during or post project commencement.

130.43 Whilst all of the above factors will impact the perceived risk of a project and the profit that a buyer or the development property would require, care *must* be taken to avoid double counting, either where contingencies are already reflected in the residual *valuation model* or risks in the *discount rate* used to bring future cash flows to present value.

130.44 The risk of the estimated *value* of the completed development project changing due to changed market conditions over the duration of the project will normally be reflected in the *discount rate* or capitalisation rate used to value the completed project.

130.45 The profit anticipated by the owner of an interest in development property at the commencement of a development project will vary according to the *valuation* of its interest in the project once construction has commenced. The *valuation should* reflect those risks remaining at the *valuation date* and the discount or return that a buyer of the partially completed project would require for bringing it to a successful conclusion.

J. Discount Rate

130.46 In order to arrive at an indication of the *value* of the development property on the *valuation date*, the residual method requires the application of a *discount rate* to all future cash flows in order to arrive at a net present value. This *discount rate* may be derived using a variety of methods (see IVS 103 *Valuation Approaches,* Appendix A20.29–A20.40).

130.47 If the cash flows are based on *values* and *costs* that are current on the *valuation date*, the risk of these changing between the *valuation date* and the anticipated completion date *should* be considered and reflected in the *discount rate* used to determine the present value. If the cash flows are based on prospective values and *costs*, the risk of those projections proving to be inaccurate *should* be considered and reflected in the *discount rate*.

K. Contractual Obligations

130.48 In considering the *value* of a development property, regard *should* be given to the probability that any contracts in place, e.g., for construction or for the sale or leasing of the completed project may become void or voidable in the event of one of the parties being the subject of formal insolvency proceedings. Further regard *should* be given to any contractual obligations that may have a material impact on *value*. Therefore, it may be appropriate to highlight the risk to the *intended user* caused by a market participant not having the benefit of existing building contracts and/or pre-leases, and pre-sales and any associated warrantees and guarantees in the event of a default by the developer.

IVS 500 Financial Instruments

10. Objective

10.01 The principles contained in the General Standards apply to *valuations* of *financial instruments*. This standard contains additional requirements or specific examples of how the General Standards may apply for *valuations* of *financial instruments* in the areas of data and *inputs*, *valuation methods* and *valuation models*, and *quality control*.

20. Scope

20.01 This asset standard *must* be applied in all *valuations* of *financial instruments* used for, but not limited to, financial, tax, or regulatory reporting and applying *professional judgement* and *professional scepticism* of *valuers* with experience on the specific type of *financial instrument* being valued.

30. Valuation of Financial Instruments

30.01 There are a number of approaches to valuing *financial instruments*. In certain cases, *values* for *financial instruments* are observable and readily available based on published trades in the exact security. In other cases, *values* are developed using industry-standard models based on *inputs* and adjustments with varying degrees of observability. For more complex or less liquid products, *values* may require bespoke models or be developed using internally developed *inputs* or assumptions. In determining *values*, *professional judgements* and *professional scepticism* may be required in the areas of data and *inputs*, *valuation models*, and *quality controls*. Depending on the nature of the *financial instrument* being valued, as well as the frequency and the complexity of the *valuation*, the *valuer* may implement a range of processes which are highly automated using systematic mappings and *data* feeds, to others that are highly manual and subjective.

30.02 The *valuer must* use *professional judgement* to determine the nature and extent of effort that is performed to develop a *value* that is consistent with the scope of work and *intended use*. The *valuer must* design, implement, and execute processes in the *valuation*, including *quality controls*, that appropriately address features of the *financial instrument* being valued, *data*, *valuation models* and other infrastructure required to value the *financial instrument*. In applying this, the *valuer must* understand the contractual, structural, and performance features of the *financial instrument* to be valued, as well as its liquidity and other information in the market and economic environment as of the *valuation date*, such as legal or regulatory factors, potentially impacting the *value*.

30.03 *Valuation risk* exists in the *valuation* of *financial instruments*. As such, throughout the *valuation*, procedures and controls *must* be put in place that enable *valuation risk* to be assessed and managed to help ensure that the *value* is appropriate for its *intended use*. Any *significant valuation risk* identified during the design, implementation, or execution of the *valuation must* have *quality controls* to address that risk and *should* have an appropriate level of review and challenge.

30.04 If the *valuer* does not possess the necessary technical skills, experience, *data*, models, or knowledge to perform all aspects of a *valuation*, the *valuer should* seek the assistance of a *specialist* or a *service organisation* providing this is agreed by the *client* and disclosed.

30.05 The *valuer* may consider delegating aspects of a *valuation* to *specialists* or *service organisations* either within or outside of the *valuer's* organisation. To perform a *valuation* in these circumstances, the *valuer must* inform these parties of the nature of the work to be performed. In order to assert compliance with IVS on the *value*, the *valuer must* determine that these parties have performed their specific procedures in a manner that is consistent with IVS or perform incremental procedures to comply with IVS.

30.06 As part of a *valuation*, *quality controls must* be in place, *must* be documented, and *should* include a degree of review and challenge.

40. Data and Inputs Overview

40.01 This section supplements IVS 104 *Data and Inputs*, provides additional clarity as it relates to *financial instruments*.

40.02 Processes related to data and *inputs*, including *quality controls*, *must* be designed, implemented and executed to mitigate *valuation risk* for the *intended use* that arises from the size of data sets and frequency of *valuations*.

40.03 A broad range of data, assumptions, and adjustments are used in developing *inputs* used in *valuations* for *financial instruments*. *Inputs* are derived from relevant data, along with assumptions and adjustments, to develop a *value.*

40.04 The characteristics of the *data*, assumptions, and adjustments used in developing *inputs must* be relevant for the *intended use* and understood by the *valuer*.

40.05 The *valuer* is responsible for assessing and selecting relevant *data*, assumptions, and adjustments to be used as *inputs* in the *valuation* based upon *professional judgement* and *professional scepticism.*

40.06 *Inputs must* be selected from the relevant data, along with assumptions and adjustments, in the context of the *asset* or *liability* being valued, the scope of work, the *valuation method* and the *valuation model*.

40.07 In circumstances where directly relevant data is not available and therefore proxy data is used, the *valuer must* assess that the various instruments to be used as proxies are sufficiently comparable to the *asset* and/or *liability* being valued based on *professional judgement*.

40.08 A *specialist* or a *service organisation* may be used to obtain either *data*, assumptions, or adjustments to develop *inputs*. The *valuer*, however, remains ultimately responsible for using *inputs* appropriate for the *valuation*.

40.09 Processes, including *quality controls*, *must* be implemented to ensure that the selection of data, assumptions, and adjustments in the *valuation*, along with the *inputs* ultimately used, is relevant to value the *assets* and/or *liabilities* in accordance with the scope of work, the *valuation method* and the *intended use*. Such processes *must* be documented.

40.10 Individuals with the appropriate experience of the *financial instrument* being valued *must* be responsible for identifying and ensuring that appropriate data, assumptions and adjustments are incorporated in the design, implementation and execution of the *valuation*.

40.11 The use of data, assumptions, adjustments and *inputs* inherently presents *valuation risk*. *Valuation risk* associated with this may arise including but not limited to:

(a) the use of inappropriate data, assumption, adjustments or *inputs*, or

(b) the misapplication of data, assumptions, and adjustments or *inputs*.

40.12 In developing *inputs*, any *significant valuation risk should* be mitigated.

50. Characteristics of Data and Inputs for Financial Instruments

50.01 The identification and selection of relevant *data* and *inputs* and applying them appropriately is an important part of the *valuation* to produce *values* consistent with the scope of work and *intended use* (see IVS 104 Data and Inputs section 30.02).

50.02 The *valuer must* apply *professional judgement* to balance the characteristics of relevant data in order to choose the *inputs* used in the *valuation*.

50.03 In certain cases, the *data* may not incorporate all of these characteristics. Therefore, the *valuer must* assess *data* and conclude, based on *professional judgement*, that the data, including any assumptions or adjustments, is relevant to value the *asset* or *liability* in accordance with the scope of work, *valuation method, valuation model* and *intended use.* Data and *inputs* used for the *valuation* of *financial instruments* can vary due to the size of data sets and frequency of *valuations*. The *valuer must* ensure that *quality controls* are in place to reduce the *valuation risk* emerging from complexities related to these characteristics.

60. Selecting Inputs

60.01 It is the *valuer* who is responsible for evaluating the *data*, assumptions, and adjustments used to develop *inputs* used to execute the *valuation* and to develop the resulting *value*. The v*aluer must* be aware of market conventions to be able to determine the appropriateness of *data*, assumptions and adjustments that are used to develop *inputs* as of a *valuation date*. Conventions, such as quoted *prices*, spread or yield, ticks or basis points, and cash flow assumptions, *must* be understood and appropriately incorporated into the *valuation*.

60.02 The *valuer must* identify and assess the source of *data*, assumptions, and adjustments to develop *inputs* to determine any limitations or bias. This includes *data* and *inputs* that are internally sourced and acquired externally from *service organisations* and *specialists*.

60.03 *Inputs must* be selected from relevant *data,* assumptions, and adjustments in the context of the *asset* and/or *liability* being valued, the scope of work, the *valuation method*, the *valuation model* and *intended use* based on the *valuer* using *professional judgement* and *professional scepticism*.

60.04 The *valuer must* consider whether *data*, assumptions, adjustments or *inputs* are *significant* to the *valuation* and the resulting *value* when determining the efforts to obtain such information, including the relevancy of any proxy data used.

60.05 To the extent the *valuer* is unable to develop *significant inputs* that are "fit for use", the *valuer should* pursue other methodologies to perform the *valuation* or consider its ability to perform the *valuation* appropriate for the *intended use*.

60.06 When valuing portfolios or groups of similar *assets* and/or *liabilities*, the *valuer should* assess whether the *inputs* are appropriately consistent across those portfolios or group.

60.07 If a *valuation* is recurring over time and certain data, assumptions, adjustments and *inputs* may be collected and used over time, they *must* be reassessed as of any *valuation date* to determine if they continue to be suitable.

60.08 If *significant inputs* are inadequate or cannot be sufficiently justified, the *valuation* would not comply with IVS.

70. Using Data and Inputs

70.01 The *valuer must* determine that *data,* assumptions, adjustments, and *inputs* are relevant for the *intended use* as of the *valuation date*. Such procedures *must* address any *significant valuation risks* associated with the *data* and controls. A set of procedures may include but not be limited to quantitative testing by comparing with authoritative sources, qualitative or quantitative testing of sources of data or *inputs*, gaps, identifying outliers or performing factor attribution which correlates changes in *data* with changes in *valuation* results.

70.02 The *valuer must* consider whether data, assumptions, adjustments, or *inputs* are *significant* to the *valuation* and the *value* when determining the efforts related to the selection and associated *quality controls*.

70.03 In accordance with IVS 104 *Data and Inputs: Appendix*, the *valuer should* consider *significant sustainability* considerations and *ESG* factors in determining the *value* of *financial instruments*.

70.04 The *valuer must* ensure that *quality controls* over data, assumptions, adjustments, and *inputs* exist throughout the *valuation*. This includes *data,* assumptions, adjustments and *inputs* that are internally sourced and acquired externally from *service organisations* and *specialists*.

70.05 The *valuer should* use data and *inputs* that are as contemporaneous as possible to the *valuation date*. As such, the *valuer must* design and implement *quality controls* to assess the timeliness of data and eliminate stale data:

(a) In the absence of timely *data*, the *valuer should* consider *data* that can be reasonably believed to approximate the *data* that would have been timely. For example, the *valuer's judgement* determines which is the best proxy of the *valuation date.*

(b) If *data,* assumptions, adjustments, or *inputs* are not as of the *valuation date*, the *valuer must* assess if these are suitable, as well as the need for the additional *quality controls*. For example, historical *data* may be appropriate to develop *inputs* for a specific *financial instrument. The valuer should* assess that such *data* is relevant for the *intended use*.

(c) For recurring *valuations*, the *valuer must* reassess *data*, assumptions, adjustments, or *inputs* as of any *valuation date* to determine if they continue to be suitable. There is no consistent timeframe at which *data*, assumptions, adjustments or *inputs* might not be suitable since it will depend on the *data* being used and the market conditions at the time of their derivation and their use in the *valuation*. For proxies, whether the degree of similarity remains valid *should* be assessed.

70.06 Since data, assumptions, adjustments and *inputs* can be provided or used by various parties across a valuation process, individuals with the appropriate experience *must* be responsible for identifying and ensuring that these *data* elements are reflected appropriately in the *valuation*.

70.07 All data and *inputs* generated by artificial intelligence or other technology-based tools and resources *must* be subject to *quality controls* to ensure that the data and *inputs* are appropriate for the *intended use*.

80. Documentation for Data and Inputs

80.01 The *valuer must* document the basis for conclusion on the relevance of the *significant* data, assumptions, adjustments and *inputs* used in the *valuation*. Such documentation *must* include sources, steps and basis for the *valuer's* decision to use such *data*, assumptions, adjustments and *inputs.* In addition, the documentation *should* include a description of any *quality controls*.

80.02 The documentation *must* be adequate to allow another *valuer*, applying *professional judgement*, to understand the scope of the *valuation*, the work performed, and the conclusions reached.

80.03 The procedures of the review and challenge function *should* be documented to allow another *valuer* to assess the degree of work performed and the basis for conclusions drawn.

80.04 For recurring *valuations*, the *valuer must* explain and document the basis for the *significant data*, assumptions, adjustments and *inputs* used, including *significant* changes that occurred and why they were appropriate.

90. Valuation Models Overview

90.01 This section supplements IVS 105 *Valuation Models*, adding greater detail as it relates to *financial instruments*.

90.02 The objective of this section of this standard is to set out the requirements pertaining to the appropriate selection and use of models in a *valuation*.

90.03 A *valuation model* is a quantitative implementation of a method in whole or in part that converts *inputs* into outputs used in the development of a *value*. This includes models generated by artificial intelligence or other technology-based tools.

90.04 A *valuation model* may rely on other *valuation models, or* artificial intelligence or other technology-based tools, to derive its *inputs* or adjust its outputs.

90.05 A *valuation model* may be developed internally or sourced externally from a *specialist* or a *service organisation*.

90.06 Individuals with the appropriate experience *must* be responsible for developing implementing, testing and using *valuation models*.

90.07 *Quality controls must* be designed, implemented and executed to minimise *valuation risk* for the *intended use* that arises from *valuation models*.

100. Characteristics of Appropriate Valuation Models

100.01 For a *valuation* to produce *values* consistent with the *intended use*, a *valuation must* use *valuation models* that are suitable for the *valuation approach* for the *financial instrument.*

100.02 The *valuer must* determine that the *valuation model* is appropriate, which for the purposes of IVS 500 *Financial Instruments* means "fit for use" in terms of *assets* and/or *liabilities* being valued, the scope of work, and the *valuation method* (see IVS 105 Valuation Models section 30.01).

100.03 In certain cases, the *valuation model* may not incorporate all of these characteristics. Therefore, the *valuer must* assess and conclude whether the *valuation model* is appropriate to value the *assets* or *liabilities* in accordance with the scope of work, the *valuation method* and *intended use*.

110. Valuation Model Selection

110.01 The process of selecting a *valuation model* that is for the *intended use* involves *professional judgement*. The potential for error in *valuation models* necessitates the importance of sound and comprehensive processes around *valuation model* development (see IVS 105 *Valuation Models,* section 40):

(a) the selection of an appropriate *valuation model should* include the following processes:

(i) design, develop, and implement determining the appropriate *valuation approaches* and techniques,

(ii) test and calibrate to the market (i.e., recent transactions or quotes) ensure that the implementation is consistent with the *intended use*, and

(iii) document: documenting the policies and procedures undertaken around the entire model development process and consistent with the *valuation*'s *intended use* and any limitations or adjustments.

(b) processes *should* be in place when relying on *valuation models* developed by a *specialist* or a *service organisation* to assess such models to a similar level as an internally developed model.

120. Testing a Valuation Model

120.01 *Valuation models must* be tested prior to use to allow that *valuer* to assess and conclude that the *valuation model* is appropriate to *value* the *financial instrument* in accordance with the scope of work, the *valuation method* and *intended use*.

120.02 Testing a *valuation model* is integral in determining whether the various components and its overall function are performing as intended, and *must* include:

(a) appropriateness for its *intended use*,

(b) the suitability of the *inputs* used by the *valuation model*,

(c) mathematical accuracy,

(d) operational accuracy (i.e., *data* links, etc),

(e) robustness (i.e., the model outputs respond appropriately over a range of *inputs* and if there are any limitations).

120.03 The nature of testing and analysis will depend on the type of *valuation model* and underlying *financial instrument* being valued. A variety of tests will likely be required to develop an appropriate *valuation model*. If *valuation model* testing reveals the *valuation model* is not suitable for its *intended use*, the *valuation model must* be remediated or rejected.

120.04 The *valuer must* understand the capabilities and limitations of a *valuation model* given its simplifications and assumptions. Limitations come in part from weaknesses in the *valuation model* due to its shortcomings, approximations, and uncertainties. Limitations are also a consequence of assumptions underlying a *valuation model* that may restrict the scope to a limited set of specific circumstances and situations.

120.05 Testing *should* be conducted to assess the potential limitations of a *valuation model* and to evaluate its behaviour over a range of *inputs*. Testing *must* also assess the impact of assumptions and identify situations where a *valuation model* is not fit for its *intended use* or becomes unreliable. Testing *must* be applied under a variety of market conditions, including scenarios that are outside the range of ordinary expectations. Extreme scenarios *must* be evaluated to identify any boundaries of *valuation model* effectiveness.

120.06 An appropriate *valuation model must* have documented evidence supporting *significant* modelling choices, including the *valuation methodology*, *valuation modelling* assumptions, *inputs*, and specific mathematical calculations. As part of this process, *significant inputs* to the *valuation model should* be subjected to analysis by both evaluating the quality and extent of the *valuation model* and conducting additional analysis and testing as necessary. The following are core validation processes around evaluating conceptual soundness:

(a) assessing whether the *valuation model* is consistent with the scope of work and *intended use*, comparison of *valuation methodologies* adopted to alternative theories and approaches,

(b) modelling assumptions *must* be assessed, with analysis of their impact on *valuation model* outputs and limitations,

(c) the relevance and reliability of data, assumptions, adjustments and *inputs* used by the *valuation model must* be evaluated.

120.07 If testing indicates that a *valuation model* may be inaccurate or unstable, there *must* be policies in place that call for the *valuation model* to be either modified, have limitations placed on its use, replaced, or abandoned.

120.08 Qualitative information and *professional judgement* used in a *valuation model must* be evaluated, including the logic, modelling assumptions, and types of *inputs* used, to establish the conceptual soundness of the *valuation model* and set appropriate conditions for its use.

120.09 The validation process *must* ensure that qualitative and *professional judgement* assessments are conducted in an appropriate and systematic manner, are supported, and are documented.

120.10 Maintaining a suitable *valuation model* requires a monitoring process that involves periodic reviews, undertaken by qualified and objective reviewers, to an extent that is appropriate for the level of *valuation risk* associated with the continued use of the *valuation model*.

120.11 There *should* be procedures for responding to any deficiencies that are discovered during the monitoring process.

120.12 For *valuation models* that are relied upon on an ongoing basis, monitoring the performance of the model *must* be performed to evaluate whether they continue to be appropriate.

120.13 Ongoing monitoring *must* be performed periodically with a frequency appropriate to the nature of the model usage, the availability of new data, assumptions, adjustments, *inputs*, modelling approaches, changes in the market environment, and the magnitude of the *valuation risk* involved. The process to monitor *must* be designed and implemented to determine the appropriateness of the *valuation model's* characteristics, including:

(a) ongoing review of appropriateness,

(b) ongoing review of accuracy, and

(c) ongoing review of transparency.

120.14 Any ongoing monitoring *should* include many of the tests employed as part of the initial *valuation model* development process:

(a) operational accuracy: there *must* be process verification checks that all *valuation model* components are functioning as designed and continue to be operationally accurate. Tests *must* also be conducted to assess ongoing model robustness and stability,

(b) *input* verification: there *must* be a process to verify that all *valuation model inputs* remain complete, reasonable, and accurate, and continue to represent the highest quality available, and

(c) model control: *valuation models must* be subject to change control procedures to ensure that the model logic is correct. Change control procedures *should* address approval requirements, documenting changes and subsequent validation. Model overrides (impacting *valuation model inputs* or outputs) *should* be monitored and assessed to determine whether they are valid and have been appropriately documented. Model overrides need to be tracked and analysed to assess their impact on model performance. Some model overrides may indicate that a *valuation model* is not performing as intended or has limitations.

120.15 An ongoing monitoring process evaluates the impact of change relative to the original *valuation model* development parameters and environment. *Valuation models must* be evaluated to determine whether changes in the *financial instrument* itself, *intended use* of the *valuation*, or market conditions necessitate adjustment, redevelopment, or replacement of the *valuation model.*

120.16 An ongoing monitoring process *should* also consider new information as it becomes available, particularly if it was not available during the original *valuation model* development process. New empirical evidence or theoretical research may suggest the need to modify or even replace original methods.

120.17 Any *valuation model* limitations and sensitivities identified in the development process *must* be regularly assessed as part of the ongoing monitoring. If *valuation models* are known to only work for certain ranges of *input values*, market conditions, or other factors, they *must* be monitored to identify situations where these constraints are approached or exceeded. As part of the ongoing monitoring process, depending on the availability of benchmarking information, it may be appropriate to compare a given *valuation model*'s outputs relative to estimates from alternative internal or external models. Discrepancies between the outputs from a *valuation model* to benchmarks *should* trigger investigation into the sources and degree of the differences, and examination of whether they are within an expected or appropriate reasonable range given the nature of the comparison. The results of a benchmark analysis may suggest revisions to a *valuation model*; however, differences do not necessarily indicate that a *valuation model* is in error. A benchmark itself is an alternative prediction, and the differences may be due to differences in the *data* or method used. Rather, if a *valuation model* and benchmark match well, that is evidence in favour of the *valuation model*.

120.18 If *significant* deficiencies are identified in the *valuation model* as part of *quality controls*, including review and challenge, the resulting *value* is not IVS compliant.

120.19 *Valuation models*, or part of model, that are based on artificial intelligence or other technology-based tools, *must* be subject to *quality controls* to ensure that the *valuation models* are appropriate for its *intended use*.

130. Documentation for Valuation Models

130.01 Documentation *should* be sufficient to provide a record of the *valuation* and include sufficient information to describe the valuation conclusion reached, such that the *valuer* applying *professional judgement* is able to understand and review the *valuation* (see IVS 105 *Valuation Models,* section 50).

130.02 There *should* be documentation of *significant inputs* to the *valuation model* including details of model design, development, implementation, and testing.

130.03 The *valuer must* document all relevant *valuation* information based upon the *intended use*, including accounting, legal, and regulatory requirements, recognising that there is *professional judgement* as to the evidence that *should* be included.

130.04 Documentation *should* be sufficiently detailed so that parties unfamiliar with a *valuation model*, such as *valuation model* users, can understand how the *valuation model* operates, its limitations, and its key assumptions.

130.05 The *valuer must* document *significant* use of artificial intelligence and other technology-based tools.

130.06 An appropriate *valuation model must* have documentation that includes the following information:

(a) *valuation* methodology selection process, including theoretical approach and supporting research and alternatives assessed,

(b) *valuation model* design and formulae,

(c) limiting assumptions and conditions inherent in the *valuation model*,

(d) *input* selection process,

(e) nature and rationale for judgmental assumptions,

(f) *valuation model* testing procedures and results,

(g) validation procedures and results (if applicable) and when it *should* be re-validated,

(h) *valuation model* limitations and mitigation of limitations, if they exist,

(i) conclusion and any qualifications if applicable.

140. Quality Control Overview

140.01 This section supplements IVS 107 Quality Controls and provides greater detail as it relates to *financial instruments*.

140.02 *Quality controls must* be implemented to ensure the *valuation* is performed consistent with IVS. The nature and extent of the *quality control* process depend on the *intended use*, *intended user*, the characteristics of the *financial instrument* being valued and the complexity of the *valuation*.

140.03 *Quality controls* may be automated and/or manual and may include but are not limited to data reviews, *valuation model* validations, independent recalculation, back testing, and fact checking.

140.04 *Quality controls must* be appropriately designed and executed in a manner that affirms the completeness and integrity of the *valuation* process and the appropriateness for the *intended use* of the conclusion of *value*.

140.05 *Quality controls must* be appropriately documented. Documentation *must* be adequate to allow the *valuer* applying *professional judgement* to understand the scope of the *quality control*, the work performed, and the conclusions reached.

140.06 *Quality controls must* be designed, implemented and executed to mitigate *valuation risk* to a level appropriate for the *intended use*.

140.07 *Quality controls must* be assessed to ensure that integrity, completeness and effectiveness of the control environment is appropriate as of the *valuation date*. The assessment *must* be documented.

140.08 The *valuer* may delegate the performance of the *quality control* process (e.g., engage a *service organisation* or a *specialist*) but cannot discharge their own accountability for the *valuation* and the *value*.

150. Characteristics of Appropriate Quality Control

150.01 In selecting and implementing *quality controls*, the *valuer* needs to comply with IVS 107 and *must* address the following:

(a) complete: *valuations* produce *values* that are sufficient to address attributes of the *assets* and/or *liabilities*,

(b) effective: producing an IVS-compliant *value and* to mitigate *valuation risk* to a level appropriate for the *intended use*, and

(c) transparent: provide a record of the *valuation* and include sufficient information to describe the *valuation* conclusion reached, such that the *valuer* applying *professional judgement* is able to understand and review the *valuation.*

160. Application of Quality Control

160.01 *Quality controls must* be designed, implemented and operating effectively to help ensure that *valuations* are performed to mitigate *valuation risk*. For *valuations* having a higher degree of *valuation risk*, *quality control* procedures *should* be more extensive.

160.02 To achieve this, *quality controls should* confirm as of the *valuation date* the following:

(a) completeness of the population of instruments to be valued,

(b) accuracy of the *financial instruments* to be valued with sufficient descriptive details to perform the *valuation*,

(c) *Quality control* processes have been executed over:

(i) data, assumptions, adjustments and *inputs*,

(ii) the selection of *valuation models* used to determine *value*,

(iii) manual or other interventions over the established process,

(iv) communication and documentation of the *valuation* process and the resultant *value*.

160.03 For *valuation*s that include the delegation to other *specialists* or *service organisations*, the *valuer must* understand and assess the roles and responsibilities, the work performed, and the results reached.

160.04 *Quality controls should* be reassessed as of any *valuation date* since *financial instruments* and the environment in which they are valued can change over time.

170. Review and Challenge

170.01 Review and challenge is an assessment on the *valuation* or the *value* performed by a *valuer* not directly involved in preparing the *valuation*. This is an integral part of *quality control*. An appropriate level of review and challenge *must* be performed to assess the reasonableness of the decisions made by the *valuer* throughout the *valuation* and compliance with IVS. In those circumstances in which review and challenge is performed, the processes *must* be performed by an individual or function that has appropriate skills and experience in valuing *financial instrument*.

170.02 With respect to models, an independent validation *should* be performed to assess the appropriateness of the selected *valuation model* in line with design objectives and *intended use*, to determine if it is performing as designed, and whether *valuation model* limitations have been identified and the impact of limitations on *value* are understood.

170.03 A validation process *should* be performed by one or more individuals with sufficient knowledge, skills, and expertise relative to the *financial instrument* being valued. In addition, they *should* have the authority to effectively challenge the *valuation model*.

170.04 The extent and rigour of validation procedures *should* be commensurate with the *intended use* of the *valuation model*. The specific tests performed and their frequency are matters that depend on the circumstances and *must* be defined and appropriately set as part of the overall *valuation.*

170.05 For *valuation models* that are intended to be used on an ongoing basis, the validation process *should* continue periodically while the *valuation model* remains in use.

170.06 Validation procedures and the results of the validation *must* be documented and transparent to the *valuer* and users of the model in a timely manner.

170.07 Validation procedures and the results of the validation of third-party *valuation models must* be documented and transparent to the *valuer* and users of the *valuation model* in a timely manner.

180. Valuation Control Framework

180.01 For *valuations* with more complexity or involving multiple individuals or processes, the assignment of responsibilities *must* be documented to ensure that accountability for the execution of all components is clear by developing a *valuation* control framework.

180.02 The *valuation* control framework *should* address:

(a) clear definition of the roles and responsibilities of each party in the *valuation*,

(b) identification of responsible parties, including *quality control* and review and challenge, and confirmation that responsible parties have correct and sufficient capabilities and resources to fulfil their responsibilities,

(c) *valuation* assessment, escalation, and remediation procedures,

(d) the types and extent of *valuation risk* associated with the *valuation*,

(e) for each instrument type either directly identify or define attributes for each of the following:

(i) *data* and *inputs,*

(ii) *valuation models*,

(iii) requirements for documentation across the *valuation*,

(iv) timeline and frequency of *valuations*.

180.03 The *valuer* may delegate the performance of the process (e.g., engage a *service organisation* or a *specialist*). The impact of such *should* be considered in the valuation control framework.

180.04 For recurring *valuations*, the *valuation* control framework *should* be reviewed and updated to help ensure the *valuation* control framework continues to be relevant.

190. Valuation Execution

190.01 There *must* be a process in place to ensure the proper usage of *inputs* and *valuation models* to develop a *value* in accordance with the *intended use*. Proper usage *should* include an understanding of process to develop and use *inputs* and *valuation models*, along with any limitations, uncertainties, or inaccuracies.

190.02 There *must* be a process in place to assess the *valuation* for compliance with the scope of work and the *value* for its *intended use*.

190.03 Limitations, uncertainties, or inaccuracies *must* be assessed to determine whether the *value* has been developed appropriately for the *intended use*.

190.04 Calibration *must* be performed during a *valuation*. Calibration is a comparison of outputs from a *valuation model* with actual observed and or expected outcomes. Actual outcomes could include *prices* observed in secondary market trading or *prices* observed in originations. Expected outcomes may consist of established expected reasonable ranges of *values* as compared with implied *valuation* metrics or *values* from alternative *valuation models*. Expected outcomes may also consist of *professional judgement* to confirm whether the resultant *values* make sense.

190.05 A variety of quantitative and qualitative testing and analytical techniques *should* be used in the assessment of the calibration analysis. Tests *should* be based on a *valuation model's* methodology, its complexity, data availability, and the *valuation risk* relating to the *valuation*. Tests *should* be designed for each situation, as not all tests will be effective or feasible in every circumstance.

190.06 If the analysis produces evidence of inappropriate *inputs* or *valuation model* performance, action *must* be taken to address the nature of the issue and understand the causes and remediation of the variance.

200. Documentation

200.01 Documentation *must* be sufficient to describe the *quality controls* implemented, including review and challenge, if any. The documentation *must* contain sufficient detail to be considered reasonable by the *valuer* applying *professional judgement*.

200.02 To the extent there are issues identified during the *quality control* process, including review and challenge, the issue(s) identified, along with the bias for decisions made and the resulting actions, *must* be documented.

200.02 For recurring *valuations*, documentation *must* be reviewed and updated at regular intervals to help ensure they continue to meet their objectives. In addition, a review *must* be conducted in the event of *significant* changes to the *financial instruments* or their environment.