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Assets acquired in a business combination to be used in research and development activities : a focus on software, electronic devices, and pharmaceutical industries

American Institute of Certified Public Accountants. IPR&D Task Force

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A I C P A P r a c t i c e A i d S e r i e s

**Assets Acquired in a Business
Combination to Be Used in Research
and Development Activities: A Focus
on Software, Electronic Devices, and
Pharmaceutical Industries**

AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS

AICPA

Assets Acquired in a Business Combination to Be Used in Research and Development Activities

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Assets Acquired in a Business Combination to Be Used in Research and Development Activities: A Focus on Software, Electronic Devices, and Pharmaceutical Industries was developed by staff of the American Institute of Certified Public Accountants (AICPA) and a task force comprising representatives from the appraisal, financial analyst, preparer, and public accounting communities. Its conclusions reflect what the developers believe are best practices. However, this Practice Aid has not been approved, disapproved, or otherwise acted upon by any senior technical committee of the AICPA or the Financial Accounting Standards Board and has no official or authoritative status.

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Pharmaceutical Industries**

**Prepared by the
IPR&D Task Force**

AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS

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INTRODUCTION

At the acquisition date of a business combination, Financial Accounting Standards Board (FASB) Statement of Financial Accounting Standards No. 141, *Business Combinations*, requires that an entity allocate the cost of the acquired company (that is, the purchase price) to tangible and intangible assets acquired and liabilities assumed based on fair value.¹ Paragraph 35 of FASB Statement No. 141 states that an acquiring company should assign a portion of the purchase price to the assets acquired and liabilities assumed based on their estimated fair values at the date of acquisition. That allocation includes any assets *resulting from* research and development (R&D) activities of the acquired company or *to be used in* R&D activities of the combined enterprise. Independent appraisals may be used as an aid in determining the fair values of assets and liabilities.

FASB Interpretation No. 4, *Applicability of FASB Statement No. 2 to Business Combinations Accounted for by the Purchase Method*, clarifies the accounting treatment for assets to be used in R&D activities acquired in a purchase business combination. FASB Interpretation No. 4 specifies that “the accounting for the cost of an item to be used in research and development activities is the same under paragraphs 11 and 12 of Statement No. 2, whether the item is purchased singly, or as part of a group of assets, or as part of an entire enterprise in a business combination accounted for by the purchase method.”²

FASB Interpretation No. 4 requires that at the acquisition date, the acquiring company should charge to income costs allocated to assets acquired *to be used in* R&D activities, unless the assets have an alternative future use. Costs allocated to assets to be used in R&D activities that have an alternative future use and assets *resulting from* R&D activities are capitalized. After initial recognition, those assets acquired are accounted for in accordance with the provisions of FASB Statement No. 142, *Goodwill and Other Intangible Assets*.

The allocation of purchase price of an acquired business can significantly affect the financial reporting of current and future operating results of the combined enterprise. In the past, the amount of goodwill the combined enterprise amortized to income in future periods was directly affected by the immediate charge to income of amounts allocated to assets acquired to be used in R&D activities that have no alternative future use.³

¹ Paragraph 9 of Financial Accounting Standards Board (FASB) Statement No. 141, *Business Combinations*, states that “a business combination occurs when an entity acquires net assets that constitute a business or acquires equity interests of one or more entities and obtains control over that entity or entities.” (Footnote references omitted) Emerging Issues Task Force (EITF) Issue No. 00-5, *Determining Whether a Nonmonetary Transaction Is an Exchange of Similar Productive Assets*, and EITF Issue No. 98-3, *Determining Whether a Nonmonetary Transaction Involved Receipt of Productive Assets or of a Business*, provide guidance on assessing whether a transaction is a business combination.

² While best practices within this Practice Aid are written in the context of a business combination transaction, they also apply to an asset to be used in research and development (R&D) activities that is acquired singly or as part of a group of assets. The valuation of an asset acquired singly in a monetary transaction is relatively straightforward and is not addressed in this Practice Aid.

³ The FASB recently issued FASB Statement No. 142, *Goodwill and Other Intangible Assets*, which requires that goodwill not be amortized, but rather tested in subsequent periods for impairment.

Amounts assigned to assets acquired to be used in R&D activities (including specific in-process research and development [IPR&D] projects), which are immediately charged to income, reduce the amount of excess purchase price that would otherwise be recorded as goodwill.

The financial reporting of assets acquired to be used in R&D activities, especially specific IPR&D projects, recently has come under increased scrutiny by management, analysts, investors, regulators, valuation specialists, and auditors. Until the early 1990s, amounts allocated to specific IPR&D projects acquired purchase business combinations were not significant. Later, however, amounts assigned to acquired IPR&D became an increasing portion of the total purchase price—in some instances more than 75 percent of the total purchase price.

Financial reporting constituents in the software, electronic devices, and pharmaceutical industries have expressed concern about the lack of comparability among entities for the: (1) definition of what constitutes assets acquired to be used in R&D activities, including specific IPR&D projects; (2) methodologies and assumptions used to value specific assets acquired to be used in R&D activities, including specific IPR&D projects; and (3) level of disclosures made for amounts allocated to assets acquired to be used in R&D activities, including specific IPR&D projects. In addition, some, including staff of the United States Securities and Exchange Commission (SEC), are concerned about valuations of assets acquired to be used in R&D activities, including specific IPR&D projects, that appear to be unreasonable determinations of fair value, and some are concerned about the adequacy of procedures employed in audits of financial statements that include a charge for the acquisition of assets acquired to be used in R&D activities, including specific IPR&D projects. As a result, on September 9, 1998, the Chief Accountant of the SEC released a letter to the chair of the AICPA SEC Regulations Committee (available on the SEC's Web site at www.sec.gov) citing a number of issues relating to the valuation of assets acquired in a purchase business combination that the SEC staff noted in its review of public registrant filings.

The AICPA responded to these concerns by forming a task force comprising representatives from various constituencies to study the issues and to prepare a best practices publication that would benefit all parties interested in the financial reporting of assets acquired to be used in R&D activities, including specific IPR&D projects, in the software, electronic devices, and pharmaceutical industries (though generally accepted accounting principles underlying the best practices apply to all industries).

This Practice Aid identifies what the task force members perceive as best practices related to defining and accounting for, disclosing, valuing, and auditing assets acquired to be used in R&D activities, including specific IPR&D projects.

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CHAPTER 1

CONCEPT OF FAIR VALUE

1.1 OVERVIEW

1.1.01 Acquiring assets in a business combination requires ascertaining the cost of the acquired company (that is, purchase price) and assigning that cost to the assets acquired and liabilities assumed on the basis of their fair values.

1.1.02 In accordance with paragraph 37 of Financial Accounting Standards Board (FASB) Statement of Financial Accounting Standards No. 141, *Business Combinations*, the portion of the purchase price assigned to an asset is affected by the acquiring company's plans for that asset. If the acquiring company expects to abandon an acquired asset, that asset would be assigned a portion of the purchase price equal to that asset's salvage value. If the acquiring company expects to sell the acquired asset, that asset would be allocated a portion of the purchase price equal to its fair value less cost to sell. (See FASB Statement No. 121, *Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of*, and Emerging Issues Task Force [EITF] Issues No. 87-11, *Allocation of Purchase Price to Assets to Be Sold*, and No. 95-21, *Accounting for Assets to Be Disposed Of Acquired in a Purchase Business Combination*.) If the acquiring company plans to hold the acquired asset for use in its operations or for investment, that asset initially would be assigned a portion of the purchase price based on its fair value. Valuation specialists would not take into consideration any company-specific benefits or cost savings in estimating fair value of assets acquired because "investment value" and "buyer-specific value" do not conform to the concept of *fair value*, as that term is defined by generally accepted accounting principles (GAAP).

1.1.03 As noted in the glossary to FASB Statement No. 141, *Business Combinations*, the fair value of an asset for financial reporting purposes is defined as the amount at which the asset could be bought or sold in a current transaction between willing parties, that is, other than in a forced or liquidation sale. GAAP uses a hierarchy for evidential matter to be used in determining fair value. Quoted market prices in active markets are the best evidence of fair value and would be used as the basis for the measurement, if available. If a quoted market price is not available, the estimate of fair value should approximate the price at which the asset would be expected to be bought or sold in a current transaction between a willing buyer and seller and would be based on the best information available in the circumstances. The estimate of fair value should consider prices for similar assets and the result of valuation methods to the extent available in the circumstances. Examples of valuation methods cited in accounting literature include (a) the present value of estimated future cash flows using discount rates commensurate with the risks involved, (b) the present value of probability-based expected future cash flows using a risk-free discount rate, and (c) option-pricing models. The valuation methods selected for measuring assets should be consistent with the objective of measuring fair value. Those methods should incorporate assumptions that market participants would use in their estimates of values, future revenues, future expenses, and interest rates (if applicable).

1.1.04 It is presumed that absent evidence to the contrary, the assumptions used by the acquiring company and acquired company in negotiating the value of the consideration exchanged in the transaction is indicative of assumptions that market participants would use in making estimates of fair value.¹ If the acquiring company pays the owners of the acquired company any significant consideration for synergistic or strategic benefits in excess of those expected to be realized by market participants, the valuation specialist would identify those excess benefits and remove them from the valuation of assets acquired. The ultimate assumptions used in making estimates of fair value would reflect the best estimate of how market participants would benefit from use of the asset being valued.

1.1.05 The IPR&D Task Force believes that market participants include all potential buyers (other than financial buyers and investors that would not intend to take an active role in managing the acquired company) whether or not the potential buyers are engaged in discussions with the seller of the business. In considering which potential buyers may be market participants, the valuation specialist would consider only those potential buyers that appear to have the ability to acquire the assets being valued. Ability would be evaluated in the context of financial wherewithal, or ability to obtain it, as well as a plausible postcombination operating strategy for the assets being valued. Market participants would include competitors in the same line of business as the company being acquired.

1.1.06 CONCEPT OF FAIR VALUE TO BE USED IN VALUATIONS PREPARED FOR FINANCIAL REPORTING PURPOSES

1.1.07 The Task Force believes that the concept of fair value in the accounting literature does not have an equal in the appraisal literature. Historically, valuation specialists may have used premises/standards of value in assigning cost to assets acquired in a business combination that include “liquidation,” “in-exchange,” “in-use,” or “investment” value. These premises/standards of value should be neither used nor referred to in valuation reports that will be used in assigning cost to assets acquired in a business combination pursuant to FASB Statement No. 141; these premises/standards of value would not be appropriate because GAAP requires the use of fair value.

- *Liquidation value.* This premise/standard suggests that the seller is compelled to sell. The buyer may be a willing buyer but the seller must sell, unwillingly. Generally there are two levels of liquidation value: forced and orderly. Forced is a one-day “gavel” or auction sale; orderly may take place over a period of time. Liquidation value for most intangible assets would be zero or close to it because there are infrequent sales of intangible assets in such a setting. However, liquidation value may be an appropriate basis for determining fair value only in those cases where an asset has been identified for immediate disposal.

¹ Paragraph B174 of FASB Statement No. 141, *Business Combinations*, provides that an entity may use its estimates of cash flows if market participant assumptions are not available without undue cost and effort.

- *In-exchange value.* This premise/standard typically includes the traditional fair market value (FMV) definition, which emanates from the income tax literature, albeit on a piecemeal basis. It is further described by some appraisers as the value of an asset “on the loading dock,” which is a tangible asset concept. FMV is often considered stand-alone value or value to a financial buyer. Real estate appraisers generally use the term *market value* as being synonymous with FMV, as their literature generally avoids value being associated with the word *fair* in relation to some sort of perceived fairness doctrine (which might be construed as a legal concept). Some appraisers argue that liquidation value is simply a subset of in-exchange value, because liquidation is also an exchange transaction. In-exchange value generally is impossible to assess for many intangibles as they are not sold piecemeal (for example, workforce, company infrastructure, **base (or core) technology**²), but instead, are bundled with other assets of a particular going concern. The willing buyer-willing seller transaction is taking place at an enterprise level, and the asset is expected to continue to be used as it is currently by the hypothetical willing buyer (commonly referred to as FMV-in-use). In-exchange value is premised on the willing buyer-willing seller concept that is contained in the concept of fair value, and it would be an appropriate basis for determining fair value if an active market existed for the asset being valued. However, assets to be used in research and development (R&D) activities, including specific **in-process research and development** (IPR&D) projects, seldom are sold other than in the sale of an entire business, and sufficient data to conclude on the value of assets acquired to be used in R&D activities based on similar transactions rarely, if ever, would exist.
- *In-use value.* This premise/standard also might include FMV, as described previously, but the important distinction is that the asset is looked at, not on a piecemeal basis, but in concert with the other assets of the enterprise of which it is a part. For tangible assets, the premise/standard of value includes installation costs and sales tax. For intangible assets, the premise/standard of value may include the contribution of the asset to the enterprise of which it is a part. In-use value generally considers the present value of the benefits contributed by the asset to the enterprise when it works in concert with the other assets of the enterprise. Because the hierarchy of evidentiary matter to be used to determine fair value includes discounted cash flow analysis, in-use value may seem to be an appropriate basis for determining fair value. However, the discounted cash flow analysis for determining in-use value should not be used to determine fair value, as defined by GAAP.
- *Investment value.* This premise/standard is often described as synergistic or strategic value. Investment value also can be part of both in-exchange or in-use value, with the distinction that the willing buyer is not a hypothetical marketplace buyer but rather is a particular buyer with specific expectations about future events, cost of capital, tax circumstances, and other issues. Investment value, with regard to intangibles, implies not only an in-use premise/standard of value, but also the value as expected to be deployed by a particular buyer, in a strategic or synergistic sense, as opposed to the current user (that is, the seller). Investment value is not an appropriate basis for determining fair value, as it would encompass benefits expected by a particular buyer of the asset that are different from those available to market participants in general.

² Terms defined in the glossary of terms (see appendix A) are set in boldface type the first time they appear in this Practice Aid.

1.1.08 FAIR VALUE OF AN ACQUIRED ASSET IS BASED ON A SEPARATE STAND-ALONE BASIS

1.1.09 Except for a few specific industries (for example, pharmaceutical), intangible assets seldom are exchanged on a separate stand-alone basis (that is, a piecemeal basis). Instead, intangible assets typically are exchanged in combination with other assets that make up a business. A willing buyer would factor into the amount that it would be willing to pay the seller to acquire the seller's business a portion of the incremental cash flows resulting from the acquisition that are expected to inure to the benefit of that buyer. The incremental cash flows would include those resulting from enterprise or going-concern components and synergies between the businesses of the buyer and seller. Thus, the cost of the acquired company may include an element of enterprise or going-concern value and synergistic value. If the buyer pays the seller any significant consideration for going-concern and synergistic benefits in excess of those expected to be realized by market participants, the valuation specialist would identify those excess benefits and remove them from the valuation of assets acquired. For purposes of assigning cost to the assets acquired in accordance with FASB Statement No. 141, the amount of the purchase price allocated to an acquired intangible asset would not be based on that intangible asset's contribution to the enterprise or going-concern value or synergistic value. The fair value of an acquired intangible asset would be based on an asset-by-asset analysis, and would be the hypothetical market price for that asset on a piecemeal basis as if that asset were traded on an established market. The hypothetical market price would incorporate assumptions that market participants would use in their estimates of values.

1.1.10 Paragraph 39 of FASB Statement No. 141 provides guidance on when an intangible asset should be recognized as an asset apart from goodwill. That paragraph states, in part, "An intangible asset shall be recognized as an asset apart from goodwill if it arises from contractual or other legal rights (regardless of whether those rights are transferable or separable from the acquired entity or from other rights and obligations). If an intangible asset does not arise from contractual or other legal rights, it shall be recognized as an asset apart from goodwill only if it is separable, that is, it is capable of being separated or divided from the acquired entity and sold, transferred, licensed, rented, or exchanged (regardless of whether there is an intent to do so)."

1.1.11 The task force believes that assets acquired to be used in R&D activities, which meet the criteria for separate recognition apart from goodwill, also should possess the characteristics and attributes of an asset (that is, control, economic benefit, measurability, and for specific acquired IPR&D projects, substance and incompleteness). Often a combination of assets (which may include tangible and intangible assets) is necessary to generate identifiable cash flows. Those cash flows may be the basis for the valuation of specific intangible assets within that combination and, therefore, a basis for the allocation of the purchase price to certain assets acquired. An issue arises over whether certain assets acquired in the business combination may be aggregated or combined and treated collectively as a single asset for financial reporting purposes in allocating the cost of the acquired company to the assets acquired. Paragraph A14 of FASB Statement No.

141 provides examples of intangible assets that meet the criteria for separate recognition apart from goodwill.

1.1.12 Each “single asset” for financial reporting purposes would be allocated a portion of the purchase price based on its fair value.

1.1.13 Example—Value of an Acquired Asset Is Determined on a “Single Asset” Basis

1.1.14 Company A acquired Company X in a business combination. Company A engages a valuation specialist to value the assets acquired in the business combination. The valuation specialist, in consultation with the respective management teams of Companies A and X, identifies a list of assets to be valued, in accordance with paragraph 5.3.26. The valuation specialist started the process by using a broad list of potential assets, such as that shown in paragraph 5.3.60. Based on procedures performed by the valuation specialist, assets identified include trade name; customer base; and technology, including its subcomponents base (or core), developed, and in-process.³ Each of these assets is valued individually. The valuation specialist performs a separate analysis for each asset, estimating the price at which that asset would be exchanged between a willing buyer and seller, on an individual basis. Individual asset values would not include synergies or benefits attributed to other assets.

1.1.15 STRATEGIC OR SYNERGISTIC VALUE EXCLUDED FROM VALUE ASSIGNED TO ACQUIRED ASSETS

1.1.16 A willing buyer may factor into the amount that it would pay to acquire the seller’s business a portion of the incremental cash flows that are expected to inure to the benefit of that buyer. The incremental cash flows may include those resulting from strategic or synergistic components. If the buyer pays the seller any significant consideration for strategic or synergistic benefits in excess of those expected to be realized by market participants, the valuation specialist would identify those excess benefits and remove them from the valuation of assets acquired.⁴ Thus, the cost of the acquired company may include an element of synergistic value (that is, investment value). However, for purposes of assigning cost to the assets acquired in accordance with FASB Statement No. 141, the amount of the purchase price allocated to an acquired asset would not include any entity-specific synergistic value. Fair value does not include strategic or synergistic value resulting from expectations about future events that are specific to a particular buyer because the value associated with those components is unique to the buyer and seller and would not reflect market-based assumptions. Therefore, entity-specific value associated with strategic or synergistic components would be included in goodwill. Fair value would incorporate expectations about future events that affect market participants. If the acquiring company concludes that the discounted cash flow method best approximates the fair value of an acquired

³ The FASB recently issued FASB Statement No. 141, which provides guidance on determining which intangible assets should be recognized apart from goodwill in the allocation of purchase price in a business combination.

⁴ See footnote 1 in chapter 1 of this Practice Aid.

asset, the discounted cash flows would incorporate assumptions that market participants would use in their estimates of fair values, future revenues, future expenses, and discount rates (if applicable).

1.1.17 Example—Exclude Effects of Synergies From Value of Assets Acquired

1.1.18 Company A acquired Company X in a business combination. At the acquisition date of the combination, Company X has specific IPR&D projects that meet the characteristics and attributes set forth in this Practice Aid. Company A concludes that a discounted cash flow method best approximates the fair value of the specific IPR&D projects. In estimating the cash flows expected to be generated from the successful development of the specific IPR&D projects, Company A should estimate its distribution costs associated with selling the completed products resulting from the successful development of the IPR&D. Company A's historical distribution costs have averaged 20 percent of product revenue. After the combination, Company A expects its distribution costs to be consistent with its historical experience. Company X's historical distribution costs have averaged 30 percent of product revenue. Market participants' historical distribution costs have averaged 25 percent of product revenue.

1.1.19 Company A would use 25 percent of product revenue as the cost of distribution in its estimate of future cash flows for purposes of valuing the acquired specific IPR&D projects because it reflects the assumption that market participants would use in their estimates of future cash flows. The excess of the anticipated benefits to be derived from Company A's expected postcombination distribution costs of 20 percent of product revenues over the market participants' distribution costs of 25 percent would be excluded from the value assigned to assets acquired to be used in R&D activities.

1.1.20 SUMMARY OF FAIR VALUE

1.1.21 The fair value of an acquired asset, including an intangible asset, for financial reporting purposes is the amount at which that asset would be bought or sold on a piecemeal basis in a current transaction between the seller and a hypothetical marketplace buyer (that is, a market participant) in other than a forced or liquidation sale. GAAP uses a hierarchy for evidential matter in determining the fair value of an asset. In the absence of quoted market prices, the technique used to estimate fair value would be the method that produces a fair value that would best approximate quoted market prices. Because quoted market prices do not exist for most intangible assets, the technique used to value identifiable intangible assets would be the technique that produces a value that best approximates a hypothetical market price. The application of the **multi-period excess earnings** method (a form of discounted cash flow analysis), as discussed in chapter 5, would reflect assumptions used by market participants.

CHAPTER 2

VALUATION APPROACHES TO ESTIMATING FAIR VALUE OF ASSETS ACQUIRED—GENERAL DISCUSSION

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CHAPTER 2

VALUATION APPROACHES TO ESTIMATING FAIR VALUE OF ASSETS ACQUIRED—GENERAL DISCUSSION

2.1 OVERVIEW

2.1.01 All valuation methodologies applied to a valuation of an asset may be broadly classified into the cost, market, or income approaches. In a valuation study, all three would be considered, and the approach or approaches deemed most indicative of *fair value*, as that term is defined by generally accepted accounting principles (GAAP), would then be selected as the proper approach(es) to use in the valuation of that asset. See paragraph 1.1.06.

2.1.02 All three approaches have application in the valuation of assets acquired in a business combination, depending on the nature of the asset being valued. However, most assets acquired *to be used in* research and development (R&D) activities, including specific in-process R&D (IPR&D) projects, are valued by the income approach or, in limited circumstances, the cost approach. Except for certain limited circumstances in a few specific industries (for example, pharmaceutical), the market approach rarely is used due to the absence of observable market values for comparable assets acquired to be used in R&D activities.

2.1.03 COST APPROACH

2.1.04 The cost approach establishes value based on the cost of reproducing or replacing the asset. The principle behind the cost approach is that the fair value of an asset should not exceed the cost to obtain a substitute asset of comparable features and functionality. In other words, replacement cost is the greatest amount that a buyer would pay for a specific asset. By its very nature, the relationship between cost incurred and value created is tenuous at best for assets acquired to be used in R&D activities, including specific IPR&D projects. For example, certain R&D projects may go on for years at great expense without ever producing a commercially viable product. In that case, the cost of reproducing the historical development steps may overstate the value of the technology. Conversely, great discoveries may be made for little cost. In this case, the cost of reproducing the historical development steps would be low compared with the value of the resulting technology. The *principle of substitution*, which is discussed in the tenth edition of *The Appraisal of Real Estate*, published by the Appraisal Institute, states that a buyer would pay no more than the costs to recreate the asset for itself. This principle is applicable when a perfect substitute can be developed in-house, as opposed to purchasing the asset from a third party. Unfortunately, many assets are one-of-a-kind, novel, or proprietary, and do not lend themselves to this make-versus-buy decision pattern. As a consequence, the IPR&D Task Force believes that it would be rare where the cost approach would be appropriate for use in valuing assets acquired to be used in R&D activities, including specific IPR&D projects. However,

the cost approach may be the only applicable approach in those cases where “substitutability” does exist, and for specific IPR&D projects where the stage of development while demonstrating substance is, nonetheless, so early that reliable forecasts of future benefit do not exist, or where no market exists for sale or transfer of comparable discoveries. Under these facts and circumstances, the cost approach may be deemed to result in a reasonably reliable estimate of fair value.

2.1.05 For purposes of assigning costs to the assets acquired in accordance with Financial Accounting Standards Board (FASB) Statement No. 141, *Business Combinations*, the valuation of an acquired asset using the cost approach, when appropriate, would be based on replacement cost. Paragraph 37 of FASB Statement No. 141 states that property and equipment to be used would be valued at current replacement cost for similar capacity unless the expected future use of the asset indicates a lower value to the acquiring company. Footnote 12 to paragraph 37 states that replacement cost would be approximated from replacement cost new less estimated accumulated depreciation in the absence of a used asset market price. The task force believes that best practices would extend the guidance in paragraph 37 and footnote 12 to the valuation of acquired intangible assets in those rare instances when the cost approach is used to value assets acquired to be used in R&D activities (including specific IPR&D projects).

2.1.06 MARKET APPROACH

2.1.07 The market approach is used to estimate value through the analysis of recent sales of comparable assets. However, sales prices of intangible assets seldom are available because intangible assets typically are transferred only as part of the sale of a business, not in piecemeal transactions. Furthermore, because intangible assets are unique to a particular enterprise, comparison between enterprises is difficult. For these reasons, the market approach seldom is used and rarely is appropriate in the valuation of intangible assets, unless exchanges of individual assets comparable to the subject asset can be observed. However, in certain limited circumstances in a few specific industries (for example, pharmaceutical), active markets exist for the purchase by operating companies of early-stage discoveries from academic institutions. These prices may provide the best indication of value for early-stage discoveries. For early-stage technologies in which comparable technology exchanges recently have occurred, prices reflected in those exchanges may serve as a reasonably reliable estimate of fair value.

2.1.08 INCOME APPROACH

2.1.09 The term *income* as used in this approach is a general term that suggests future benefits that can be quantified in the form of expected future cash flows. It does not imply that the income approach should be used only with forecasts of net income in the financial reporting sense. Rather, the income approach involves two general steps. The first is establishing a forecast of the estimated future net cash flows expected to accrue directly or indirectly to an investor resulting from ownership of the asset or a group of assets. The second step involves discounting these estimated future net cash flows to their present value.

2.1.10 The valuation of intangible assets is most commonly quantified under the general principles of the income approach in which there is an identifiable stream of cash flows. This stream of cash flows can manifest itself in many ways; among them are—

- *Multiperiod excess earnings.* In cases where the intangible assets result in unique products (for example, pharmaceuticals), or the intangible assets are necessary to compete in an industry (for example, semiconductor design), a multiperiod excess earnings method may be the best indicator of value. This method requires a forecast of cash inflows, cash outflows, and pro-forma charges for economic returns of and on tangible assets employed (for example, working capital and property, plant, and equipment). It also may be necessary to charge a return on other enabling intangible assets, such as trademarks, distribution channels, or relationships with customers, as well as base (or core) technologies. Cash outflows include direct and indirect expenses for costs to complete, manufacturing, sales, marketing, routine technical maintenance, general, and administrative and taxes. The net cash inflows (or multiperiod excess earnings) are ascribable to the intangible asset and, when discounted to present value, provide an estimate of its fair value.
- *Royalties not paid through ownership of the asset.* Because the owner enjoys the right to manufacture and sell products that incorporate the intangible assets without having to pay a royalty fee to the inventor, the “relief from royalty” is a cash flow savings that can be discounted to present value. See paragraph 2.1.12 for best practices regarding the use of the relief from royalty method.
- *Manufacturing cost savings.* An intangible asset may afford its owner a cost savings over the next best alternative available (that is, a reduced or eliminated cash outflow). These cost savings also represent a measure of the benefits enjoyed by the owner of the intangible asset. The present value of the cost savings would be included in the estimate of fair value of the intangible asset provided that the cost savings would be available to market participants if they owned the intangible asset.
- *Incremental revenue.* The intangible asset may allow the owner to charge premium prices for the product, as it incorporates features, functions, or capabilities that the alternative cannot offer (that is, a higher cash inflow). The premium price is a direct measure of the benefits derived from ownership of the intangible asset and would be included in its estimate of fair value provided that the premium price would be available to market participants if they owned this intangible asset.

2.1.11 The income approach may be broken down into two basic sub-component methods: (a) single-period capitalization and (b) multiperiod discounted cash flow. The single-period-capitalization method is used primarily in the valuation of small businesses, professional practices, certain types of real property, and constant growth intangible assets that are expected to exist in perpetuity. This method rarely is of use in the valuation of assets acquired to be used in R&D activities because the assumptions as to perpetual existence and continuous growth would be inappropriate. The multiperiod discounted cash flow method is most commonly used and takes on many methodological forms (for example, the relief-from-royalty method and the multiperiod excess earnings method).

2.1.12 *Relief-from-royalty method.* A relief-from-royalty method may be appropriate for certain categories of intangible assets. For instance, trademarks and tradenames, patents, developed product technology, and base (or core) technology are all categories of

intangible assets that frequently are licensed in exchange for a royalty payment. Ownership of the asset *relieves* the owner of the need to pay a royalty to a third party for use of the asset. A key challenge in applying this method is to develop a royalty rate that is comparable to ownership of the specific asset (for example, a rate that equates to worldwide, exclusive rights to use that asset in perpetuity in any manner desired).

2.1.13 The basic tenet of the relief-from-royalty method is that without ownership of the subject intangible asset, the user of that intangible asset would have to make a stream of payments to the owner of the asset in return for the rights to use that asset. By acquiring the intangible asset, the user avoids these payments.

2.1.14 Generally, the relief-from-royalty method would be appropriate in cases where—

- The intangible asset makes a contribution to the relevant cash flows that is comparable to that made by a comparable licensed asset (for example, licensed assets typically do not represent the only or major source of return; they are usually sub-components or ancillary items).
- The intangible asset can reasonably be separated from other assets and it is practical and possible to separately license it.
- The rights of ownership can reasonably be compared to the rights under a license (for example, similar geographic market coverage, duration, exclusivity, limitation, technology, and type of customer).
- Verifiable objective information regarding royalty rates can be obtained, including rates for agreements that confirm comparable economic rights for similar intellectual property. Typically the best source of information would be other licensing agreements made by the acquired company or acquiring company for comparable technologies. Use of industry average rates or other broad benchmarks would not be acceptable.

2.1.15 The task force believes that the relief-from-royalty method rarely would be appropriate in the valuation of specific IPR&D projects due to a lack of observable comparable royalty rates. However, it may be appropriate as a means of measuring the value of contributory assets needed to generate the expected cash flows from specific IPR&D projects (for example, royalties paid for the use of trademarks, **developed product technology**, base (or core) technology, subject to the points discussed in paragraph 2.1.14). See paragraph 5.3.54 for guidance on contributory asset charges.

2.1.16 *Multi-period excess earnings method.* The multi-period excess earnings method is a specific application of the discounted cash flow method under the income approach. The principle behind the multi-period excess earnings method is that the value of an intangible asset is equal to the present value of the incremental after-tax cash flows attributable only to the subject intangible asset. The incremental after-tax cash flows attributable to the subject intangible asset are then discounted to their present value. This method is discussed in detail in chapter 5 of this Practice Aid.

2.1.17 *Real option method.* Recent finance and valuation literature describe emerging methods and techniques for economic analysis and valuation employing the use of option pricing models. Option pricing models (for example, binomial, econometric [such as Shelton and Kassouf], and riskless-hedge arbitrage [such as Merton, Black

Scholes, Noreen Wolfson, and Gastineau Madansky]) historically have been used to value financial contracts, such as warrants and options. The use of these models recently has been extended to value strategic choices (in effect, options) and assets subject to strategic choices. This class of economic analysis and valuation modeling has been referred to in the literature as “real options,” signifying its use with corporate (real) assets as opposed to financial assets.

2.1.18 Real option methods, when used to value assets, may be classified as a subset of the income approach because those methods are forward-looking. Real option methods can be considerably different, in terms of calculations, from other methods under the income approach. As opposed to viewing the future as a singular best estimate outcome, or even multiple outcomes subject to probability factors used to calculate expected value, real option methods look at the optionality inherent at various future milestones, considering the success achieved at those various milestones and the multiple probabilistic outcomes then to be contemplated.

2.1.19 Real option methods have begun to achieve acceptance as a superior method for evaluating income streams subject to both uncertainty and choice. For example, in the discounted cash flow method, when using very high discount rates (such as with some early stage research project cash flows), the negative cash outflows occur at the beginning of the estimation period (in which the present value interest factor is still relatively significant), and the positive cash inflows occur at the end of the estimation period (in which the present value interest factor has become exponentially lower), thus often resulting in negative present values. Management often will still invest in those projects because they have the choice either to stop investing or to continue investing based on either failing to reach or reaching or exceeding certain targets at certain time-based milestones. They are still willing, however, to invest small amounts in a portfolio of projects (which they can discontinue midstream, on an individual project basis) in anticipation of the occasional big payoff. A tradition-based observer might conclude that management has acted irrationally to invest in a project with negative net present value, while emerging theory might suggest that the discounted cash flow method is inaccurate or incomplete when used in a circumstance of high risk (uncertainty) and multiple-choice points in the future.

2.1.20 The use of real option methods has yet to become readily accepted as a valuation tool, and the level of standardization among practitioners has not yet reached a point for inclusion in this Practice Aid. The real option method warrants mention, however, as it may be increasingly used in the future as a supplement to the basic multiperiod excess earnings method described in this Practice Aid.

CHAPTER 3

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CHAPTER 3

DEFINITION OF ASSETS ACQUIRED THAT ARE TO BE USED IN RESEARCH AND DEVELOPMENT ACTIVITIES

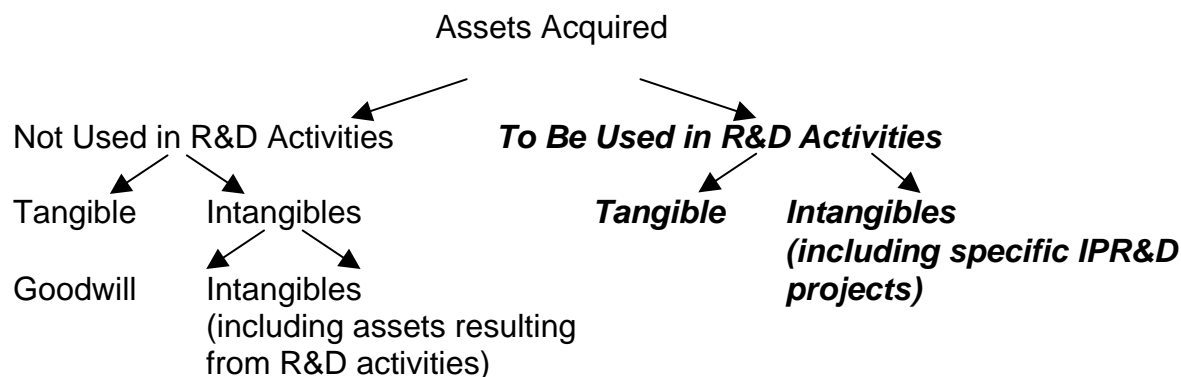
3.1 INTRODUCTION

3.1.01 This chapter sets forth what the IPR&D Task Force believes are best practices in defining assets acquired in a business combination that are to be used in research and development (R&D) activities, including specific in-process R&D (IPR&D) projects, for purposes of applying Financial Accounting Standards Board (FASB) Interpretation No. 4, *Applicability of FASB Statement No. 2 to Business Combinations Accounted for by the Purchase Method*, and related accounting guidance. The task force notes that business combinations involving the software, electronic devices, and pharmaceutical industries recently have exhibited the greatest proportional amount (in terms of total value) of assets acquired to be used in R&D activities. Accordingly, the task force chose examples that focus on those industries.

3.1.02 This chapter's "Introduction" and "Key Concepts" sections are supplemented by section 3.3, "Explanatory Comments," which expands on the definition and sets forth the task force's support for the determination of best practices. In addition, section 3.3 includes questions and the task force's answers, which are intended to aid in the application of the best practices.

3.1.03 FASB Statement of Financial Accounting Standards No. 2, *Accounting for Research and Development Costs*, sets forth broad guidelines on the activities that constitute R&D activities and defines R&D for purposes of applying generally accepted accounting principles (GAAP) in the United States. In a business combination, assets acquired to be used in R&D activities are separately identifiable assets and each one is allocated a portion of the cost of the acquired company based on its fair value. Assets to be used in R&D activities subsequently are accounted for under FASB Interpretation No. 4, and are either reported as an asset if an alternative future use exists for the asset or immediately charged to income. Such separately identifiable assets include both tangible and intangible assets, including intangible assets representing specific IPR&D projects to be pursued by the combined enterprise. Each specific IPR&D project must have been the result of activities undertaken by the acquired company, the costs of which qualified as R&D costs under FASB Statement No. 2 and related guidance.

3.1.04 The following diagram illustrates an overall description of assets acquired in a business combination. This Practice Aid focuses on the assets that are *italicized* and in bold type.



3.2 KEY CONCEPTS

3.2.01 Best practices suggest that assets acquired to be used in R&D activities should exhibit certain essential characteristics and one attribute, as described in the following paragraphs.

3.2.02 Characteristics of Assets to Be Used in R&D Activities

- *Control*—An acquiring company's interest in each asset is controllable by the enterprise (that is, the consolidated entity and its equity investees) so that it can obtain benefit from the asset and control others' access to the asset.
- *Economic benefit*—An acquiring company anticipates that each asset singly, or in combination with other assets of the combined enterprise, will be used in its post-combination R&D activities.

3.2.03 Attribute of Assets to Be Used in R&D Activities

- *Measurability*—The fair value of each asset is estimable with reasonable reliability.

3.2.04 With respect to *specific IPR&D projects* to be recognized initially as assets to be used in R&D activities (which are then immediately expensed), there also is persuasive evidence that each of the projects has substance and is incomplete.

- *Substance*—For a specific IPR&D project of an acquired company to give rise initially to an asset, the acquired company performed R&D activities that constitute more than insignificant efforts and that (a) meet the definition of R&D under FASB Statement No. 2 and (b) result in the creation of value.
- *Incompleteness*—Incompleteness means there are remaining risks (for example, technological or engineering) or certain remaining regulatory approvals at the date of acquisition. Overcoming those risks or obtaining the approvals requires that the combined enterprise will incur additional R&D costs.

3.2.05 In summary, for costs to be allocated to assets acquired to be used in R&D activities, the task force believes that each asset should possess the characteristics of control and anticipated economic benefit and the attribute of its fair value being estimable with reasonable reliability. Further, if the asset to be used in R&D activities is

a specific IPR&D project, that project should have substance and be incomplete. Finally, for the allocated cost to be charged to income immediately, the asset acquired should have no alternative future use, as discussed in the following paragraphs.

3.2.06 *Alternative future use.* If an asset acquired to be used in a current R&D activity has no alternative future use, FASB Interpretation No. 4 requires that the portion of the purchase price allocated to that asset be immediately charged to income by the combined enterprise. If there is an alternative future use that is identified by the acquiring company at the acquisition date or through the allocation period, the purchase price allocated to that asset is capitalized by the combined enterprise (an acquired intangible is capitalized if it meets the criteria in paragraph 39 of FASB Statement No. 141, *Business Combinations*).

3.2.07 For an asset acquired for use in an R&D activity to have an alternative future use, the task force believes that (a) it is reasonably expected¹ that the combined enterprise will use the asset acquired in the alternative manner and anticipates economic benefit from that alternative use, and (b) the combined enterprise's use of the asset acquired is not contingent on further development of the asset subsequent to the acquisition date (that is, the asset can be used in the alternative manner in the condition in which it existed at the acquisition date).

3.2.08 If the use of the acquired asset is only in one or more other R&D projects of the combined enterprise that have commenced² at the acquisition date, the task force believes that use represents a present (as opposed to a future) R&D activity and the purchase price allocated to that asset should be immediately charged to income. If the asset's use (see paragraph 3.2.07) is in an R&D project to be commenced at a future date, the task force believes that such use is an alternative future use and that the purchase price allocated to that asset should be capitalized.

3.2.09 The task force believes that the determination of whether there is an alternative future use for an asset is based on specific facts and circumstances. However, for an acquired *tangible* asset to be used in R&D activities (for example, computer testing equipment used in an R&D department), the task force believes that there is a rebuttable presumption that such asset has an alternative future use (see paragraph 3.2.07) because that asset generally has separate economic value independent of the successful completion and commercialization of the IPR&D project. This presumption would be overcome, for example, if it were reasonably expected that the combined enterprise will use that asset only in a specific IPR&D project that had commenced before the acquisition date.

¹ For purposes of this Practice Aid, *reasonably expected* is used in the context of its meaning as provided in footnote 18 of paragraph 25 of Financial Accounting Standards Board (FASB) Concepts Statement No. 6, *Elements of Financial Statements* (that is, believed on the basis of available evidence or logic but is neither certain nor proved). The task force believes that *reasonably expected* connotes a slightly greater than 50 percent chance of occurring.

² A research and development (R&D) project is considered to have commenced when more than insignificant costs that qualify as R&D costs in accordance with FASB Statement of Financial Accounting Standards No. 2, *Accounting for Research and Development Costs*, have been incurred.

3.2.10 Whether an acquired *intangible* asset to be used in R&D activities has an alternative future use (see paragraphs 3.3.06 and 3.2.07) depends on specific facts and circumstances. Facts and circumstances that suggest the presence of an alternative future use include: (a) it is reasonably expected that the combined enterprise will use the intangible asset being acquired in its current condition in another currently identifiable R&D project to be commenced at a future date (for example, the acquired intangible asset represents base [or core] technology that is reasonably expected to be used in future R&D projects), or (b) a specific IPR&D project comprises a number of subprojects or parts, certain of which are complete and for which it is reasonably expected that the subprojects or parts will be used other than in a current R&D project (see paragraphs 3.3.58 and 3.3.59). Those circumstances suggest that the acquired intangible assets have alternative future uses.

3.2.11 Facts and circumstances that suggest the absence of an alternative future use include intangible assets that represent incomplete specific IPR&D projects that are narrow in focus and for which the technology involved has the likely potential of being obsolete if the acquired specific IPR&D project fails or is terminated. Those circumstances suggest that if the specific IPR&D project were to be unsuccessful, management of the combined enterprise would abandon (or potentially block a competitor from, or both) the specific IPR&D project and direct its future R&D spending to areas using a different technology. Therefore, the specific IPR&D project as it existed at the date of the business combination would not have an alternative future use.

3.2.12 However, if the combined enterprise expects to sell an acquired tangible or intangible asset associated with the acquired company's R&D activities, the task force believes that the asset would be treated as an asset held for sale. The FASB and the Emerging Issues Task Force (EITF) have established criteria that should be satisfied to demonstrate commitment to a disposition (see FASB Statement No. 121, *Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of*, and EITF Issues No. 87-11, *Allocation of Purchase Price to Assets to Be Sold*, and No. 95-21, *Accounting for Assets to Be Disposed Of Acquired in a Purchase Business Combination*). The task force believes that an asset held for sale would not be accounted for under the guidance of FASB Statement No. 2 and FASB Interpretation No. 4; instead, the asset would be reported by the combined enterprise as an asset held for sale and recorded at an amount equal to its fair value, less cost to sell.

3.3 EXPLANATORY COMMENTS

3.3.01 Scope of R&D Activities

3.3.02 Paragraphs 8 through 10 of FASB Statement No. 2 set forth broad guidelines on the activities whose costs are and are not to be classified as R&D. More particularly, paragraphs 9 and 10 identify activities that are and are not within FASB Statement No. 2's definition of R&D activities. These paragraphs are reproduced here (paragraph 3.3.16 discusses R&D activities conducted for others):

9. The following are examples of activities that typically would be included in [R&D]...:
 - a. Laboratory research aimed at discovery of new knowledge.
 - b. Searching for applications of new research findings or other knowledge.
 - c. Conceptual formulation and design of possible product or process alternatives.
 - d. Testing in search for or evaluation of product or process alternatives.
 - e. Modification of the formulation or design of a product or process.
 - f. Design, construction, and testing of preproduction prototypes and models.
 - g. Design of tools, jigs, molds, and dies involving new technology.
 - h. Design, construction, and operation of a pilot plant that is not of a scale economically feasible to the enterprise for commercial production.
 - i. Engineering activity required to advance the design of a product to the point that it meets specific functional and economic requirements and is ready for manufacture.

10. The following are examples of activities that typically would be excluded from [R&D]...:
 - a. Engineering follow-through in an early phase of commercial production.
 - b. Quality control during commercial production including routine testing of products.
 - c. Trouble-shooting in connection with break-downs during commercial production.
 - d. Routine, on-going efforts to refine, enrich, or otherwise improve upon the qualities of an existing product.
 - e. Adaptation of an existing capability to a particular requirement or customer's need as part of a continuing commercial activity.
 - f. Seasonal or other periodic design changes to existing products.
 - g. Routine design of tools, jigs, molds, and dies.
 - h. Activity, including design and construction engineering, related to the construction, relocation, re-arrangement, or start-up of facilities or equipment other than (1) pilot plants...and (2) facilities or equipment whose sole use is for a particular research and development project.
 - i. Legal work in connection with patent applications or litigation, and the sale or licensing of patents.

In addition to paragraph 10 of FASB Statement No. 2, other authoritative literature that limits the scope of activities that qualify as R&D activities includes—

- Paragraph 4 of FASB Interpretation No. 6, *Applicability of FASB Statement No. 2 to Computer Software*, which states, "The Board's intent in Statement No. 2 was that the acquisition, development, or improvement of a process by an enterprise for use in its selling or administrative activities be excluded from the definition of research and development activities."
- Paragraph 2 of FASB Statement No. 2, which excludes from its scope R&D activities that are conducted for others under a contractual arrangement (for which FASB Statement No. 68, *Research and Development Arrangements*, provides accounting guidance).
- Statement of Position (SOP) 98-1, *Accounting for the Costs of Computer Software Developed or Obtained for Internal Use*, which provides that costs incurred to

develop internal-use software are not R&D costs unless they meet the limited exceptions provided in paragraph 18 of that SOP. Paragraph 12 of that SOP states that internal-use software has the following characteristics: (a) the software is acquired, internally developed, or modified solely to meet the entity's internal needs and (b) during the software's development or modification, no substantive plan exists or is being developed to market the software externally. The task force believes that the circumstances when a project to develop internal-use software would be accounted for as a specific IPR&D project are rare. (Also see EITF Issues No. 00-2, *Accounting for Web Site Development Costs*, and No. 00-3, *Application of AICPA Statement of Position 97-2 to Arrangements That Include the Right to Use Software Stored on Another Entity's Hardware*.)

3.3.03 Questions and Answers³

3.3.04 Question 1: Company A acquired Company X in a business combination. Company X produces a personal financial management software package and currently is marketing Version 4.2 of that product. Company X provides periodic upgrades to its customers who have subscribed to post-contract customer support—these releases are sometimes referred to in the industry by the term *right of dot* releases. At the acquisition date, development of Version 4.3 was underway and was approximately 60 percent complete. Do the efforts to develop Version 4.3 meet the scope requirements of R&D activities?

3.3.05 Answer: No. Paragraph 10 of FASB Statement No. 2 provides examples of activities that typically are excluded from its definition of R&D. In describing activities that are not typically R&D, paragraph 10(d) says that “routine, on-going efforts to refine, enrich, or otherwise improve upon the qualities of an existing product” do not meet the definition of R&D. The task force believes that right of dot upgrades generally are used to identify and correct minor programming errors, or “bugs,” and do not significantly improve or extend the life of the existing product. The activities described with respect to the development of Upgrade 4.3 fall within the type of activities described in paragraph 10(d) of FASB Statement No. 2 and, therefore, are not R&D activities. The purchase price allocated to Version 4.2 should reflect the value of the improvements made through the efforts to develop Version 4.3 and would be capitalized as an intangible asset provided the asset meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill. In contrast, the task force believes that *left of dot* upgrades generally are used to identify significant enhancements to the features and functionality of an existing product.

3.3.06 Question 2: Company A acquired Company X, a telecommunications company, in a business combination. At the acquisition date, Company X was developing new software to run its switches that are necessary for various telephone services (for example, voice mail and call forwarding) that it provides to its customers. Company X does not plan to sell, license, or market the software under development; rather, Company X plans to use the software internally to help provide the telephone services to its customers. Company A decided that the combined enterprise would continue the development of the new software.

³ The task force developed the following Q&As to provide guidance on the scope of FASB Statement No. 2 and related accounting literature.

Do the efforts to develop the new software meet the scope requirements of an IPR&D project (that is, an asset to be used in R&D activities)?

3.3.07 Answer: No. To qualify as IPR&D, the activities and costs should be R&D, as described in FASB Statement No. 2 and related guidance. SOP 98-1 provides that the costs related to the development of the new software that will be used internally are not R&D costs. In that case, the purchase price allocated to the internal-use software project should be capitalized (provided the asset meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill) and accounted for in accordance with the provisions of SOP 98-1. However, if Company X also were engaged in licensing software as an element of its switching equipment and had a substantive plan in existence or under development to externally market the acquired software under development and Company A intended to carry through on that plan, the activities and costs of the new software under development would qualify as R&D in accordance with FASB Statement No. 2 and the software development project would meet the scope requirements of an IPR&D project (that is, an asset to be used in R&D activities). Costs on that project incurred subsequent to the consummation of the business combination would be accounted for in accordance with the provisions of FASB Statement No. 86.

3.3.08 Question 3: Company A acquired Company X in a business combination. Company X produces a well-known cardiovascular product to treat hypertension. Company X has been working on a process change to increase its production yields and create more efficiency in its manufacturing process. The process change is significant and considered to be nonroutine. Food and Drug Administration (FDA) approval of the process change is required due to the nature of the expected change and the approval had not been obtained at the acquisition date. Do the efforts to develop the process change meet the scope requirements of R&D activities?

3.3.09 Answer: Yes. Paragraph 9 of FASB Statement No. 2 provides examples of activities that typically are included in R&D activities. The task force believes that because FDA approval of the process change is required, the process modifications fall within example 9(e), which specifically addresses modification of the formulation or design of a product or process.

3.3.10 Control, Economic Benefit, and Measurability

3.3.11 The task force notes that both Accounting Principles Board (APB) Opinion No. 16, *Business Combinations* (which is superseded by FASB Statement No. 141), and FASB Interpretation No. 4 were promulgated before the FASB developed its Concepts Statements. Consequently, the standards for accounting for assets acquired to be used in R&D activities did not explicitly consider the notions of control, economic benefit, and measurability contained in the Concepts Statements. The task force also notes that the FASB has indicated a possible future interest in reconsidering the requirements of FASB Statement No. 2 and FASB Interpretation No. 4.

3.3.12 The task force noted that (a) the requirement that an asset acquired to be used in R&D activities that has no alternative future use is accounted for as if it were an asset, albeit only for purposes of allocating the purchase price, and (b) the FASB's

Concepts Statements (No. 2, *Qualitative Characteristics of Accounting Information*; No. 5, *Recognition and Measurement in Financial Statements of Business Enterprises*; and No. 6, *Elements of Financial Statements*) address characteristics of assets. The task force was particularly challenged by FASB Concept Statement No. 6's definition of an asset representing "probable future economic benefits" in light of the FASB's basis for conclusions in paragraph 39 of FASB Statement No. 2, which states: "There is normally a high degree of uncertainty about the future benefits of individual research and development projects, although the element of uncertainty may diminish as a project progresses." The comments in the following paragraphs provide the task force's bases for setting forth as a best practice that assets acquired to be used in R&D activities possess the characteristics of control and anticipated economic benefit and the attribute of being estimable with reasonable reliability.

3.3.13 *Control.* The characteristics of control and economic benefit that are incorporated by the task force in the definition of assets acquired to be used in R&D activities are derived from the definition of an asset in paragraphs 25 and 26 of FASB Concepts Statement No. 6. That definition states the following:

Assets are probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events.... An asset has three essential characteristics: (a) it embodies a probable future economic benefit that involves a capacity, singly or in combination with other assets, to contribute directly or indirectly to future net cash inflows, (b) a particular entity can obtain the benefit and control others' access to it, and (c) the transaction or other event giving rise to the entity's right to or control of the benefit has already occurred.

3.3.14 With respect to control, examples of circumstances that provide evidence that the acquiring company obtains the benefit of and controls others' access to an asset to be used in R&D activities include the following:

- The combined enterprise has the ability to separate or divide, and sell, transfer, license, rent, or exchange its rights to the asset acquired to be used in R&D activities.
- The combined enterprise has proprietary intellectual property rights, which it believes could be successfully defended if its rights thereto were to be legally challenged.

Proprietary intellectual property that has not been patented or otherwise been legally protected may have been, or could be in the future, independently developed or duplicated by a limited number of third parties. Such a circumstance could give rise to more than one party having access to substantially the same intellectual property (for example, a nonexclusive license). The task force believes that such a circumstance does not violate the control characteristic merely because the third parties cannot be legally estopped from using their similar intellectual property or undertaking such development activities. However, the ability of third parties to duplicate an enterprise's intellectual property, or their possession of similar intellectual property, would diminish its fair value.

3.3.15 The combined enterprise may control some but not all rights to the benefits of a particular asset. For example, assume the acquired company had the exclusive right to the exploitation and control of the results of a specific IPR&D project in the United States and an unrelated enterprise had the exclusive rights to non-U.S. exploitation of the results. The task force believes that the U.S. exploitation rights possessed by the combined enterprise would meet the control characteristic.

3.3.16 Accounting for the costs of R&D activities conducted for others under a contractual arrangement is excluded from the scope of FASB Statement No. 2 and instead falls within the scope of FASB Statement No. 68. Therefore, assets acquired to be used in R&D activities do not include the ongoing benefit arising from the continuation of those R&D activities being conducted by the acquired company for others under a contractual arrangement, even if the combined enterprise might receive economic benefit from its participation in that arrangement. For example, a contractual R&D arrangement previously entered into by the acquired company might have provided that the acquired company will realize additional economic benefits based on the subsequent exploitation by the funding party of any assets that might result from the R&D efforts of the acquired company. The task force believes that such potential benefits constitute contingent consideration owed to the acquired company for having performed the contract R&D activities and do not constitute control of the benefits of the R&D. The potential benefit from such right may represent an intangible asset for purposes of applying the allocation provisions of FASB Statement No. 141. On the other hand, if an R&D arrangement grants the acquired company rights to exploit all or a part of the resulting technology, the task force believes that such rights would satisfy the control characteristic.

3.3.17 *Economic Benefit.* A characteristic of an asset acquired to be used in R&D activities set forth herein is that it embodies an anticipated future economic benefit that involves an entity using such asset in its postcombination R&D activities. The task force acknowledges that an anticipated future economic benefit is less likely of occurring than a *probable* future economic benefit, which is part of the definition of an asset in FASB Concepts Statement No. 6 (as cited in paragraph 3.3.12 of this Practice Aid). However, the task force believes that many of the assets acquired to be used in R&D activities would not satisfy a requirement that there be a probable future economic benefit for many of the same reasons that the FASB concluded in FASB Statement No. 2 that R&D costs should not be capitalized as assets.

3.3.18 In circumstances in which an alternative future use for an asset acquired to be used in R&D activities exists (see paragraph 3.2.06), the task force believes that such use would demonstrate a probable future economic benefit that would inure to the combined enterprise when the asset is consumed. Accordingly, that asset would be capitalized provided the asset meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill. If there is no alternative future use or if the alternative use is another current IPR&D project, the asset acquired to be used in R&D activities is similar to any R&D cost. The FASB cited in the basis for its conclusions in paragraph 45 of FASB Statement No. 2: “Although future benefits from a particular research and development project may be foreseen, they generally cannot be measured with a reasonable degree of certainty.” As a result, the FASB concluded that the cost of R&D should not be capitalized.

3.3.19 **Economic Benefit: Question and Answer**⁴

3.3.20 Question: Company A acquired Company X in a business combination. At the acquisition date, Company X was pursuing completion of ten in-process research and development projects. In evaluating Company X's R&D activities during the due-diligence process before the acquisition date, management of Company A concluded that two of the in-process projects would not be pursued subsequent to the consummation of the business combination. Company A also concluded that there was no alternative future use for the two projects, nor did it have any expectation to sell the projects in their present incomplete states. Therefore, management of Company A concluded it would abandon further development of the two projects. Do the two projects have an anticipated economic benefit to Company A?

3.3.21 Answer: No. The task force believes that specific IPR&D projects that (a) will not be used in the activities of the combined enterprise and (b) are believed to have no value on a stand-alone basis result in no economic benefit to the acquiring company. Therefore, Company A should not allocate any portion of its purchase price of Company X to the two projects.

3.3.22 *Measurability.* The attribute of fair value being estimable with reasonable reliability, incorporated by the task force in the description of an asset acquired to be used in R&D activities, is derived from paragraph 23 of FASB Concepts Statement No. 6, which states the following:

To be included in a particular set of financial statements, an item must not only qualify under the definition of an element but also meet criteria for recognition and have a relevant attribute (or surrogate for it) that is capable of *reasonably reliable measurement or estimate*. Thus some items that meet the definitions may have to be excluded from formal incorporation in financial statements because of recognition or measurement considerations. [*Emphasis added*]

3.3.23 Paragraph 76 of FASB Concepts Statement No. 5 provides that "information about some items that meet a definition may never become *sufficiently reliable* at a justifiable cost to recognize the item...." [*Emphasis added*] In citing a "definition," FASB Concepts Statement No. 5 is referring to definitions of the elements of financial statements found in FASB Concepts Statement No. 3, which has since been superseded by FASB Concepts Statement No. 6, cited earlier. Paragraph 75 of FASB Concepts Statement No. 5 states, "To be reliable, information about an item must be representationally faithful, verifiable, and neutral." Paragraph 89 of FASB Concepts Statement No. 2 states that verifiability:

... means no more than that several measurers are likely to obtain the same measure. It is primarily a means of attempting to cope with measurement problems stemming from the uncertainty that surrounds accounting measures and is more successful in coping with some measurement problems than others. Verification of accounting information does not guarantee that the information has a high degree of representational faithfulness....

⁴ The task force developed the following Q&A to provide guidance on *economic benefit*.

Paragraphs 72 through 74 of FASB Concepts Statement No. 7 address the relevance and reliability of present value measurements.

3.3.24 The task force concluded that the measurement criteria for assets to be used in R&D activities and to be accounted for pursuant to FASB Interpretation No. 4 should be set at the level of “estimable with reasonable reliability.” The fact that the portion of the purchase price allocated to assets to be used in R&D activities is immediately charged to income does not obviate the requirement that such assets be estimable with reasonable reliability. There may be circumstances in which the fair value of an intangible asset to be used in R&D activities cannot be estimated with reasonable reliability for accounting purposes. In those circumstances, that asset would not be recognized separately in the financial statements; rather, it would become an element of reported goodwill.

3.3.25 The task force believes that the existence of an independent valuation report, in and of itself, is not sufficient evidence that the fair value of an asset acquired to be used in R&D activities is estimable with reasonable reliability for accounting purposes. Valuations that are consistent with the best practices methodologies discussed in chapters 2 and 5 of this Practice Aid may not result in reasonably reliable estimates of fair value because the variability of the estimates underlying the valuation may be so great that different valuation specialists would estimate fair values that are not within a reasonable range.

3.3.26 Circumstances in which the fair value of an asset acquired to be used in R&D activities can be estimated with reasonable reliability might include a specific IPR&D project for which the economic benefit of the product, service, or process anticipated from the R&D effort is sufficiently determinable so a reasonably reliable estimate of the future expected net cash flows can be made based on assumptions that are verifiable. For example, the expected attributes of a product under development may be sufficiently known, and the combined enterprise’s knowledge of the expected market based, in part, on its operating experience in those markets would allow the acquiring company to estimate with reasonable reliability the—

- Size and duration of the market for the product.
- Time and costs to commercialize and market.
- Potential customers.
- Share of market.
- Selling price.
- Production and related costs for the product.

3.3.27 The task force believes that those circumstances would allow one to conclude that the fair value of the asset acquired to be used in R&D activities can be estimated with reasonable reliability. If the attributes listed above had been identified and contemporaneously documented, and the assumptions supported before the acquisition date, the task force believes that the likelihood that a reasonably reliable estimate of fair value could be determined is increased. The converse also would be true.

3.3.28 In measuring the fair value of a specific IPR&D project that is anticipated to significantly improve an existing product, service, or process, the task force believes that the fair value is limited to the economic benefit derived from the significant

improvement. Therefore, as discussed in chapter 5 of this Practice Aid, the fair value of any such project would exclude the value of the base (or core) technology to which the improvements are to be made. The fair value of the base (or core) technology represents a separate intangible asset acquired that is to be allocated (based on its fair value) a portion of the cost of the acquired company provided the base (or core) technology meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill.

3.3.29 In addition, the fair value of the specific IPR&D project excludes the value of the acquiring company's existing assets that are unique to the acquiring company and that are anticipated to contribute to the economic benefits to be realized by the combined enterprise upon completion of the specific IPR&D project (referred to as buyer-specific synergies).⁵ See chapter 5 of this Practice Aid for a discussion of methodologies to be used in determining the fair value of a specific IPR&D project, base (or core) technology, and the effects of buyer-specific synergies.

3.3.30 *Measurability: Questions and Answers*⁶

3.3.31 Question 1: Company A acquired Company X in a business combination. Two months before the combination, Company X had initiated an IPR&D project that had progressed to the point that its substance could be demonstrated at the acquisition date. Nevertheless, because the time envisioned to complete the project was so long, management, in consultation with valuation specialists, concluded that, under the traditional present value approach, a discount rate of 70 percent was appropriate to reflect the completion and market risks in measuring the present value of expected future net cash flows. Does the use of such a large discount rate provide evidence that the fair value of the specific IPR&D project is not estimable with reasonable reliability?

3.3.32 Answer: Not necessarily. If sufficient evidence exists to support the assumptions used to value the IPR&D project and the conclusion is that the valuation was reasonably reliable (and, as a result, verifiable), the task force believes that the use of a 70 percent discount rate is not evidence, by itself, that the resulting estimate of fair value is not reasonably reliable. See chapter 5 of this Practice Aid for best practices in selecting discount rates under the traditional present value approach.

3.3.33 Question 2: Company A acquired Company X in a business combination. Company X is engaged in the biotechnology business. At the time of the acquisition, Company X had a compound in phase II clinical trials (efficacy trials in a small population of humans) for the indications of treatment of osteoporosis and breast cancer. Compounds in this stage of development for Company X have historically had approximately a 20 percent chance of ultimately receiving regulatory marketing approval by the FDA. Company A's experience with the FDA approval process for similar compounds and that of other market participants allows it to reasonably estimate the time required for final FDA approval. Even though a specific manufacturing plan does not yet exist, Company A can make estimates, which it believes are reasonable, of the

⁵ Paragraph B174 of FASB Statement No. 141, *Business Combinations*, provides that an entity may use its estimates of cash flows if market participant assumptions are not available without undue cost and effort.

⁶ The task force developed the following Q&As to provide guidance on *measurability*.

costs to manufacture and sell the drug and how the drug will be priced based upon its and market participants' experiences with other drugs. In the pharmaceutical industry, once the market has been identified, a company generally can determine the market size, the competition that exists or will exist in that market, and an estimate of the market share it may be able to obtain. Can Company A estimate with reasonable reliability the fair value of Company X's specific IPR&D project?

3.3.34 Answer: Yes. Because the potential markets for the product under development have been identified and future costs can be reasonably estimated, the task force believes that Company A should be able to estimate the fair value with reasonable reliability. The low probability of success is not evidence, by itself, that the resulting estimate is not reasonably reliable. The valuation of each of the projects should consider their individual stage of development, as discussed in paragraph 5.3.85.

3.3.35 Question 3: Company A acquired Company X in a business combination. Company X is engaged in the development and marketing of software products. At the date of acquisition, Company X was developing a new version of an existing product that it believed would significantly extend the functionality and improve the operating characteristics of the current product. Nevertheless, the new version is still expected to process data for the same purpose as the present version and carry over much of the design characteristics of its present version. Does the value of the technological processes incorporated in the existing product and the institutional knowledge with respect to the design of that product represent base (or core) technology whose value would be excluded from the value of the specific IPR&D project to develop the new version of the software product?

3.3.36 Answer: Yes. See chapter 5 of this Practice Aid for a discussion of best practices in the measurement of the fair value of the base (or core) technology.

3.3.37 Question 4: Company A acquired Company X, a large company with operations in a variety of business segments, in a business combination. For the previous six months, Company X had been pursuing an R&D project to develop a "breakthrough" technology that would allow for the production of small-scale nuclear reactors suitable for residential use. A development plan that identified the anticipated significant technological hurdles had been prepared and some of those hurdles had already been overcome, as documented in minutes to the periodic status meetings among project managers and others in Company X. Accordingly, Company X concluded that the project had substance. However, due to the novel technologies that Company X hoped to develop and employ, it had not been able to reasonably estimate the costs to complete the project, the potential demand for the anticipated new product, and the manufacturing costs. Can the fair value of Company X's specific IPR&D project be estimated with reasonable reliability under the multiperiod excess earnings methodology (as discussed in paragraph 5.3)?

3.3.38 No. Though Company X's specific IPR&D project has substance and is incomplete, the task force believes that the circumstances described would not permit the fair value of the project to be determined under the multi-period excess earnings methodology because any expected future net cash flows could not be estimated with reasonable reliability, in part because the assumptions used would not be verifiable.

3.3.39 Specific IPR&D Projects

3.3.40 R&D projects are managed in a variety of ways and, as a result, it is not always clear when a specific project has substance or whether it has been completed. One way to view an R&D project is to consider it as having a life cycle, which in a basic form, might consist of four phases depicted below. Within the earlier phases, the attribute of substance gradually evolves to the point at which it can be demonstrated; within the later phases, the project reaches a point at which it is no longer considered incomplete. At some point, concurrent with or subsequent to a project having first demonstrated substance, the acquiring company likely will be able to estimate the fair value with reasonable reliability. Those four phases (more than one of which may be occurring simultaneously) are as follows:

- a. *Conceptualization*—This phase entails coming up with an idea, thought, new knowledge, or plan for a new product, service, or process, or for a significant improvement to an existing product, service, or process, or it may represent a decision by a company to focus its research activities within certain core competencies. Management might make an initial assessment of the potential market, cost, and technical issues for ideas, thoughts, or plans to determine whether the ideas can be developed to produce an economic benefit.
- b. *Applied research*—This phase represents a planned search or critical investigation aimed at the discovery of additional knowledge in hopes that it will be useful in defining a new product, service, or process that will yield economic benefits, or significantly improve an existing product, service, or process that will yield economic benefits. In addition, work during this phase assesses the feasibility of successfully completing the project and the commercial viability of the resulting expected product, service, or process.
- c. *Development*—This phase represents the translation of research findings or other knowledge into a detailed plan or design for a new product, service, or process, or for a significant improvement to an existing product, service, or process, and carrying out development efforts pursuant to the plan.
- d. *Preproduction*—This phase represents the business activities necessary to commercialize the asset resulting from R&D activities for the entity’s economic benefit.

Managers of the R&D project may require, at various points (or gates) during the life cycle, an evaluation of the probability of success and the potential economic results. At each gate, a decision may be made about whether to continue funding the project. (See exhibit 3-1 for a further description of phases that are particular to the pharmaceutical industry in the United States.)

3.3.41 A depiction of a project life cycle is as follows:

Conceptualization		Applied Research		Development	Preproduction
Idea	Development concept	Product definition	Product feasibility		

3.3.42 A future product, service, or process is defined and its potential economic benefits are identified at some point within this life cycle after the project’s conceptualization. After

the time that a future product, service, or process has been defined and its potential economic benefits have been identified, a specific IPR&D project begins to demonstrate substance. This generally occurs when more than insignificant R&D efforts have been expended after the characteristics of the future product, service, or process have been defined and management has approved continued project funding. In addition, management has been able to make reasonably reliable estimates of the project's completion date, consider the impact of potential competition, and make reasonably reliable estimates of costs to complete, sales volumes, average selling prices, and related costs over the anticipated economic life of the expected product, service, or process. The task force believes that at that time or at a later point, the project is far enough along to enable an entity to make a reasonably reliable estimate of its fair value. See paragraph 3.3.44 for guidance on the attribute of substance.

3.3.43 At some point before commercialization (that is, before earning revenue), and possibly before the end of the development or pre-production stages, the task force believes that the R&D project is no longer considered incomplete for accounting purposes (that is, ultimate completion of the project has occurred) and an asset *resulting from R&D* emerges from what was previously an asset *used in R&D*. See paragraph 3.3.54 for explanatory comments on the attribute of incompleteness.

3.3.44 Specific IPR&D Projects—Substance

3.3.45 The task force believes that any specific IPR&D project that has progressed beyond project conceptualization to a degree that enables its fair value to be estimated with reasonable reliability has substance. In contrast, if the acquired company has only articulated a concept, this does not constitute substantive activities, nor does it create a circumstance in which the acquiring company estimates the fair value of that concept with sufficient reliability to meet the measurability attribute that defines an asset to be used in R&D activities.

3.3.46 In many circumstances, there will be written evidence of the specific IPR&D project's economic and technical objectives (including identification of its technological, engineering, and regulatory risks) in the acquired company's records. In addition, there will be periodic contemporaneously prepared evidence of the progress being made as the specific IPR&D project evolves to completion. That data will aid in verifying that the acquired IPR&D project had substance at the acquisition date. To the extent that the economic objectives originally set forth by the acquired company are significantly different from those reflected in the valuation of the IPR&D project by the acquiring company, best practices are to reconcile and explain those differences.

3.3.47 Questions and Answers⁷

3.3.48 Question 1: Company A, a pharmaceutical company, acquired Company X, a biotechnology company engaged in cancer research and development, in a business combination. Company X is developing a small molecule compound that is thought to have a therapeutic application in the cancer market. The company has incurred R&D

⁷ The task force developed the following Q&As to provide guidance on *substance*.

costs in (a) screening approximately 5,000 compounds, (b) identifying eight lead compounds, and (c) determining that they have the desired effect on the biological “target” (a part of the body, such as a protein, receptor, or gene; or something foreign to the body, such as a bacteria or virus that appears to play an important role in causing certain diseases), whose function is understood and has been validated. The eight compounds are considered potential drug development candidates and Company X has gathered sufficient scientific data to decide to advance these compounds to phase I clinical testing (that is, testing in humans). Based on Company X’s understanding of the biological target’s function and scientific data available in the public domain, Company X is able to make some general predictions on potential therapeutic benefits in treating several types of cancer and side effects of the compounds, if successful. The activities already undertaken by Company X have resulted in its reporting R&D expenses. A multi-tumor cancer drug represents a significant market opportunity. While no detailed market research has been conducted, market projections have been prepared based on patient population and cancer incidence rates. The complexity of the manufacturing process has not been thoroughly evaluated; however, manufacturing costs can be reasonably estimated based on the complexity of the synthesis process of the current lead compounds and raw material requirements. Patent searches have been completed with no findings of any patents that would block Company X’s plans for further development and commercialization of the compounds. In addition, Company X has filed for patent protection of these compounds. Have sufficient R&D activities been undertaken for this small molecule program, such that, at the acquisition date, the acquired IPR&D projects have substance and can be valued with reasonable reliability?

3.3.49 Answer: Yes. However, the decision about whether fair value can be measured with reasonable reliability requires a significant amount of judgment. The eight compounds that may lead to possible drug development candidates have progressed far enough through the R&D life cycle to have substance and Company X can estimate the fair value of these projects with reasonable reliability. Company X has selected a specific biological target whose function is understood and has been well validated. Company X has determined that the eight lead compounds have the desired effect on the biological target and do not interact with other tissues in the body. Consequently, it is reasonable to anticipate that these compounds may lead to a drug for treating cancer. Company X has gathered enough scientific data to decide to advance these compounds to phase I clinical testing. Market potential can be reasonably estimated because incidence of cancer, by tumor type, is well documented and tracked by several reputable independent organizations. Market share for a particular compound can be estimated by reviewing data currently available in the public domain that tracks patented programs, by biologic target, from preclinical through market launch. Thus, Company X can determine the number of competitors conducting research on a particular biologic target and estimate the potential order of entry given the competitors’ stages of development. Company X can also estimate price and revenue potential based on currently available drugs, incidence rates by specific tumor type, and therapeutic benefit. Manufacturing costs can be reasonably estimated based on the complexity of the synthesis process of the current lead compounds and raw material requirements. Since the potential revenues and costs can be reasonably estimated based upon data available in the public domain, the fair value of the eight compounds, albeit at an early-stage development, can be measured with reasonable reliability. While the facts in this example support the conclusion that the fair value of the

compounds can be measured with reasonable reliability, other situations with changes from the fact pattern presented here may result in a different conclusion.

3.3.50 Question 2: Company A acquired Company X in a business combination. Company X designs and markets switches for sale to telecom companies, which use the switches to route telephone communications through their systems. Company X developed a routing technology for a switch that it believes will be pivotal in creating the next generation of switches to route Internet and video data over telephone systems (that is, it had completed the conceptualization and research phases of the project). Before the acquisition, Company X had surveyed several telecom companies to assist in designing the specifications of the proposed switch. In addition, Company X had a documented plan for development of the switches, which it expected would be complete in eighteen months. As of the date of the acquisition, the R&D project had been underway for two months. Have sufficient R&D activities been undertaken such that, at the date of acquisition, the specific IPR&D project has substance?

3.3.51 Answer: Yes. As of the date of the acquisition, Company X had completed the conceptualization and research phases of the project and was partially through development of the new switch. As a result, the project satisfied the attribute of substance of an asset acquired to be used in R&D activities. The facts presented are insufficient to determine whether the measurability attribute can be satisfied. However, if the measurability attribute could be satisfied, the fair value of the project would be affected by the early stage of development.

3.3.52 Question 3: Company A acquired Company X in a business combination. Company X was an established contract manufacturer of electronic components. An important aspect of its manufacturing process involved the extrusion of copper wire into extremely fine strands. The R&D department of Company X had targeted improvements in this aspect of the manufacturing process as one of its top priorities. The basic objective of such a project would involve significant improvements to the current process that would further reduce the diameter of the copper strands without significantly increasing manufacturing costs (for example, through lower yields of acceptable material or increased consumption of energy and indirect materials). As of the date of the acquisition, Company X's R&D personnel had begun studying possible technological improvements to the extrusion process by researching relevant technical and academic material that was in the public domain. Company X's R&D personnel also had conducted an all-day "brainstorming" session in which a number of theoretical approaches were debated. As a result of that meeting, a consensus on the most promising approach had been identified and a project plan was being drafted that would define expected timing, resource requirements, and key technical issues of the R&D project. Company X personnel were excited about the novel approach and believed that the project had a fairly high likelihood of ultimate success. Have sufficient R&D activities been undertaken such that, at the acquisition date, the specific IPR&D project has substance?

3.3.53 Answer: No. At the date of the acquisition, Company X's R&D project had only been conceptualized. Company X had not expended a more than insignificant effort in R&D activities to advance existing knowledge and technology toward the project objective. As a result, even though the project concept was promising, the

project lacked substance at the acquisition date and would not qualify as an asset to be recognized in the purchase price allocation.

3.3.54 Specific IPR&D Projects—Incompleteness

3.3.55 The attribute of incompleteness with respect to a specific IPR&D project acquired as part of a business combination suggests that there are remaining technological or engineering risks, or regulatory approvals. The task force notes that once an R&D project is complete, it represents an asset resulting *from* R&D activities, and the allocated portion of the purchase price representing its fair value would be capitalized by the combined enterprise provided the asset meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill.

3.3.56 Factors or indicators that should be considered in evaluating whether activities making up a specific R&D project are incomplete at the acquisition date include both of the following:

- a. Circumstances in which the combined enterprise expects to incur more than de minimis future costs related to the acquired project that would qualify as R&D costs under FASB Statement No. 2
- b. Additional steps or milestones in a specific R&D project that remain for the combined enterprise, such as successfully overcoming the remaining risks or obtaining regulatory approvals related to the results of the R&D activities

3.3.57 Examples of circumstances that the task force believes demonstrate that the ultimate completion of a specific R&D project would not have occurred at the date of acquisition include the following:

- *Tangible products that are not subject to governmental regulations*—The acquired company’s project has not reached a level of completion such that “first customer acceptance” (or a similar demonstration of completion for those products not subject to first customer acceptance) of the product has occurred. The task force notes that obtaining customer acceptance for a new product often requires a demonstration of the product’s performance vis à vis planned operating measurements. Therefore, obtaining first customer acceptance evidences completion of the project. Upon achieving first customer acceptance (or a similar demonstration of completion for those products not subject to first customer acceptance), the combined enterprise would not incur additional costs that qualify as R&D pursuant to FASB Statement No. 2 to further develop the product.
- *Software to be sold, licensed, or otherwise marketed*—Technological feasibility for the project has not been established under the criteria in paragraph 4 of FASB Statement No. 86. The task force notes that the risks of successful completion of a software project that has reached technological feasibility (and therefore is considered complete) are sometimes greater than for a hardware project just before first customer acceptance. However, in formulating the guidance for completion of a specific IPR&D project for the development of software, the task force looked to the requirements of FASB Statement No. 86.
- *Pharmaceutical products and processes related to right to market or use that are subject to governmental regulations*—The acquired company’s product or process

has not been approved for marketing or production by the appropriate regulatory body. Approval for marketing for this purpose includes only the approval of the product to be marketed. For example, in the United States, the task force believes that only FDA approval of a product is sufficient for a project to be complete (FDA approval of a product for marketing also includes approval of the manufacturing process). Approval of the label or, where applicable, the pricing is not necessary for the project to be complete.

3.3.58 There may be circumstances in which a specific IPR&D project comprises a number of subprojects that individually could be used by the combined enterprise in a manner that would create an anticipated economic benefit. If any of those subprojects are complete and it is anticipated that the combined enterprise will derive economic benefit from the discrete exploitation of those subprojects (that is, an alternative future use exists for the subprojects), then the fair values of the complete subprojects would represent assets resulting from R&D activities. As a consequence, the purchase price allocated to those projects would be capitalized and accounted for in accordance with the provisions of FASB Statement No. 142 provided the assets meet the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill. Such a circumstance is similar to that described in paragraph 39 of FASB Statement No. 86.

3.3.59 For example, the acquired company may be in the process of developing a variety of software products that can be marketed both individually and in combination as an integrated suite of products (the suite). The development effort for certain of the individual products is complete and the development of the others is incomplete. Consequently, the development of the suite is incomplete. If it is anticipated that the combined enterprise will market the discrete products individually and include the discrete products as part of the suite, the task force believes that the purchase price allocated to any of the individual products whose development is complete should be capitalized as an asset resulting from R&D provided the asset meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill. In addition, the task force believes that the value of the completed component product(s) represents base (or core) technology, which is excluded from the measurement of the fair value of the suite.

3.3.60 Questions and Answers⁸

3.3.61 Question 1: Company X was acquired in a business combination and had an IPR&D project to develop the next generation of its microchip. The project was estimated to be 70 percent complete in terms of costs incurred. The technological and engineering hurdles remaining, though time-consuming and expensive, are not believed to be high-risk development issues and are not considered particularly difficult to accomplish. In fact, in similar previous development efforts, Company X consistently demonstrated that it could accomplish the remaining tasks once it got to a similar stage of completion. However, the remaining tasks are of the type described as R&D activities in paragraph 9 of FASB Statement No. 2, rather than of the type of activities described in paragraph 10 that are not considered R&D activities. Is the project incomplete?

⁸ The task force developed the following Q&As to provide guidance on incompleteness.

3.3.62 Answer: Yes, because first customer acceptance of the microchip has not occurred. Even though the likelihood of success in achieving first customer acceptance may seem high based on Company X's history, first customer acceptance has not occurred and additional qualifying R&D costs will be incurred. Consequently, completion of the project has not occurred at the date of acquisition.

3.3.63 Question 2: Company A acquired Company X in a business combination. At the acquisition date, Company X had an R&D project in process to develop the next generation of its job scheduling software. Company X had delivered a working model of the software to several of its customers as part of the beta test stage. As of the acquisition date, engineers were working to incorporate improvements discovered as a result of the beta testing. Company A expects to complete the development and market any resulting product in a manner generally consistent with the plans of Company X that existed at the acquisition date. Is the project incomplete?

3.3.64 Answer: No. The task force believes that when a project reaches technological feasibility as defined in FASB Statement No. 86, the project becomes an asset resulting from R&D. Because Company X had provided a working model of its software to several of its customers as part of the beta test stage, it met the technological feasibility criteria described in paragraph 4 of FASB Statement No. 86. As a result, a portion of the purchase price of the acquired company is allocated to the fair value of the project and capitalized provided the asset meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill.

3.3.65 Question 3: Company A acquired Company X in a business combination. At the acquisition date, Company X had an application to market a new drug pending FDA approval. Both Company A and X believe that Company X had completed all necessary tasks related to the filing (including having obtained satisfactory test results) and they believe that they will ultimately obtain FDA approval. Is the project incomplete?

3.3.66 Answer: Yes. Industry experience shows that there are uncertainties about obtaining approval for a new drug upon filing with the FDA. FASB Statement No. 2 does not specifically address whether costs of obtaining FDA approval are R&D; however, the task force believes that such future expenditures satisfy the condition that, to be considered incomplete, additional R&D costs must be incurred by the combined enterprise.

3.3.67 Question 4: Company X was acquired in a business combination and was involved in the design, manufacture, and marketing of consumer video communications devices. Company X had a successful product in the market and had been working on the next generation of the product, which involved significant improvements to features and functions. (These improvements have no alternative future use outside the new product.) Given the target market of young retail consumers, Company X planned to debut the new product at an upcoming trade show, followed shortly after by a nationwide marketing campaign. For competitive reasons, Company X did not allow prototypes of the product outside of its facilities, although it did use focus groups representing its target market demographics for feedback on design and features, product and performance quality, and marketing approaches. As of the acquisition date, Company X had approved the design and specifications of the latest prototype of new product as being ready for commercial manufacture. As a result, Company X's

production facilities were preparing to begin mass production of product intended for commercial sale. However, Company X had yet to finalize specifications of the product shell (for example, color, ergonomic design, and brand graphics), which were still being tested with the focus groups. Commercial manufacturing had not yet begun and no products had been sold. Is the project incomplete?

3.3.68 Answer: No. The R&D project related to the significant improvement of the existing product has been completed and there are no remaining R&D costs to be incurred. The remaining tasks before commercial manufacture and product launch do not involve technological or engineering risks, and the associated costs would not qualify as R&D. Although “first customer acceptance” has not occurred, Company X has demonstrated an equivalent internal milestone based on its product development practices and life cycle.

3.3.69 Alternative Future Use

3.3.70 Paragraph 11 of FASB Statement No. 2 specifies that the costs of intangible assets, materials and equipment, or facilities that are acquired or constructed for R&D activities and that have alternative future uses (in R&D activities or otherwise) should be capitalized (this is in accordance with FASB Statement No. 142).

3.3.71 The task force recognizes that the determination of whether an asset acquired to be used in R&D activities has an alternative use (as discussed in paragraph 3.2.07) is based on management intent because at least one potential future use could reasonably exist for most assets acquired. For example, the task force notes that the possibility exists for an enterprise to sell many of the assets acquired to be used in R&D activities; however, the task force believes that only an *expectation* of subsequent sale would relieve management from considering whether an asset has an alternative future use.

3.3.72 The task force believes that an alternative future use that would require capitalization in post-combination financial statements is one that is capable of using the assets acquired as those assets exist at the acquisition date of the business combination. Consider a circumstance in which successful completion of an IPR&D project might give rise to additional R&D projects designed to significantly improve the just-completed product. Because those subsequent projects are contingent on the successful completion of the current project and would use the current R&D project in its future completed condition, the task force believes that they do not constitute an alternative future use at the acquisition date.

3.3.73 The task force believes that management of a combined enterprise should search for alternative future uses in circumstances where (a) a significant portion of the purchase price is allocated to assets acquired to be used in R&D activities and (b) the allocation of purchase price to assets acquired to be used in R&D activities represents a material expenditure of the acquiring company. This belief is founded on the premise that contingency plans often are developed to maximize the return of assets acquired that have a material cost. However, the mere existence of a plan to use the assets acquired in an alternative manner does not represent an alternative future use unless the conditions in paragraph 3.2.07 are met. The task force believes that best practices for management of the combined enterprise are to document those considerations that

lead to its determination of whether there are or are not alternative future uses for assets acquired to be used in R&D activities.

3.3.74 Questions and Answers⁹

3.3.75 Question 1: Company A acquired Company X, a software company, in a business combination. Before being acquired, Company X had two specific IPR&D projects underway. Project 1 is a word-processing package to be used in hand-held computing devices, and Project 2 is an advanced version of that project that incorporates significant additional features and functionality. Project 2 is dependent on the successful completion of Project 1. Is Project 2 an alternative future use for Project 1?

3.3.76 Answer: No. Since Project 2 builds off Project 1, and is therefore contingent upon successful completion of Project 1, the task force believes that it is not an alternative future use for Project 1 because Project 2 will only use the completed Project 1, and thus Project 2 would not have used Project 1 as it existed at the acquisition date. Any allocation of purchase price to the fair value of Project 2 would exclude the value that will be derived through use of the Project 1 technology. However, the task force believes that the progress made in Project 1 through the date of the consummation of the business combination would represent base (or core) technology with respect to Project 2, the value of which would be excluded from the measurement of the fair value of Project 2.

3.3.77 Question 2: Company A acquired pharmaceutical Company X in a business combination. Company X owns a license that gives it the exclusive right to develop and market a certain compound for the treatment of various diseases. At the time of the acquisition, the compound was in early stage clinical trials as a drug for treating certain cancers. The project met all of the criteria for an asset used in R&D activities. It is believed the same compound also might be effective in treating a type of cardiovascular disease. The cancer treatment projects were in early stage testing but had progressed to the point that the fair value could be estimated with reasonable reliability. However, human studies for toxicity (safety) of the compound were not yet completed. If the results of those studies are negative, the project will be abandoned and the compound would not be considered for use in a development project to address cardiovascular disease. Should the potential use of the license rights to the compound for a project addressing cardiovascular disease represent an alternative future use?

3.3.78 Answer: No. The task force believes that studies for toxicity represent a contingency that must be resolved before an alternative future use is reasonably expected. Unless the compound successfully completes the toxicity studies for the indication for cancers, it will not be considered for use in treating any other disease. The risk of failing the toxicity tests for the treatment of cancers would be considered in estimating the fair value of the specific IPR&D project. However, there would be an alternate future use if favorable toxicity results had already been obtained and it were reasonably expected that the combined company would pursue the project to address cardiovascular disease. If favorable toxicity results were obtained subsequent to the acquisition date and the combined company then decided to pursue the cardiovascular

⁹ The task force developed the following Q&As to provide guidance on *alternative future use*.

indication, it would not constitute an alternative future use because the project would have progressed to a state that was different from what existed at the acquisition date.

3.3.79 Question 3: Company A acquired custom software Company X in a business combination. Before being acquired, Company X custom-designed software packages based on specifications provided by its customers. Company X retained the rights to a specific custom software package it recently had designed for one of its customers with the intent of externally marketing that software. The custom software package had been programmed to run on a proprietary operating system with interfaces to the customer's legacy systems. Company X intended to modify the software so that it would be integrated into a widely used enterprise resource planning (ERP) package marketed by Company B. Company A planned to pursue a project after the acquisition to modify the Company X software so that it could be integrated into its own ERP software that competes with that of Company B. However, Company A did not plan to pursue modification of the Company X software to work with Company B's package. Is the Company B modification of the software package an alternative future use for the acquired software?

3.3.80 Answer: No. The task force believes that an alternative future use is one that is reasonably expected to occur. Because Company A did not have the intent to pursue the Company B modification of the software package, that potential use, which was the intended use by legacy Company X, is not an alternative future use. Company A would still need to evaluate, however, whether (a) any of the technology represented by the custom version of the software project represented base (or core) technology and (b) it had another alternative future use for the custom software package.

3.3.81 Question 4: Company A acquired Company X in a business combination. Company X has one product, a transdermal patch for the delivery of drugs. The patch has been approved by the FDA for the delivery of Drug A, and Company X has been selling that product for two years. In addition, Company X has commenced clinical trials for delivery of Drug B via transdermal patch in anticipation of applying to the FDA for approval for such use. It is expected that significant R&D costs will be incurred to customize the transdermal patch technology to accommodate the unique characteristics of Drug B before obtaining FDA approval for delivery of Drug B. Those actions are underway and are approximately 50 percent complete, but the FDA has not approved delivery of Drug B. Does the marketing of the patch for delivery of Drug A, while the project to obtain FDA approval for delivery of Drug B is underway, constitute an alternative future use for the transdermal patch?

3.3.82 Answer: No. The characteristics of Drugs A and B are different and the design of a transdermal patch for each drug must reflect those different characteristics. Therefore, the patch for Drug B will not use the design of the patch for Drug A as it existed at the consummation of the business combination. However, the task force believes that the technological processes and institutional knowledge represented by the transdermal patch used for the delivery of Drug A that currently is marketed would represent base (or core) technology, the value of which should be excluded from the measurement of the fair value of the IPR&D project for use of the patch to deliver Drug B.

3.3.83 Question 5: Company A acquired Company X in a business combination. Company X has developed a compound for a new drug. Company A expects that its only use for the compound will be in four of its currently active IPR&D projects for other indications in addition to continuing Company X's project for the initial indication. Do Company A's four currently active IPR&D projects constitute alternative future uses for Company X's project to develop the compound?

3.3.84 Answer: No. Company X's compound is expected to be used only in Company A's currently active IPR&D projects and not in *future* IPR&D projects. Therefore, the task force believes that Company A should allocate the amount of purchase price assigned to Company X's compound to all of the IPR&D projects, and those amounts should be immediately charged to income. However, if any of Company A's four projects had instead been planned future projects (instead of currently active projects) and the future projects were reasonably expected to occur, the planned future project(s) would have been an alternative future use, and the fair value of Company X's compound would be capitalized provided the asset meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill.

3.3.85 Question 6: Company A, a pharmaceutical company, acquired Company X in a business combination. Company X's assets include a library of molecules for high-throughput screening of drug candidates. Company X is using portions of the library in its existing specific IPR&D projects and it is reasonably expected that other portions will be used in currently identified future projects. Should the fair value of this library be capitalized because it has an alternative future use?

3.3.86 Answer: Yes, provided the asset meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill. The library of molecules for high-throughput screening of drug candidates is a tool used in the R&D process that is being used in current specific IPR&D projects and is reasonably expected to be used in different future R&D projects. While portions of the library are being used in current specific IPR&D projects, it is reasonably expected that the library also will be used in several different currently identified future R&D projects. The task force believes that the library represents an asset resulting from R&D activities.

3.3.87 Question 7: Company A acquired Company X in a business combination. Company X's assets include worldwide exploitation rights to Web-based access technology. The rights supported an existing specific IPR&D project to develop a product for exploitation in the United States. Company A does not have the resources to exploit the potential product in foreign countries and, therefore, it reasonably expects that it will sell the exclusive rights to exploitation in countries outside the United States. Should the fair value of the non-U.S. exclusive exploitation rights be capitalized?

3.3.88 Answer: Yes, provided the asset meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill. The expected sale of the non-U.S. exclusive rights for exploitation in foreign countries is an intangible asset that is separable and would be treated as an asset held for sale. The task force believes that the fair value of the non-U.S. exclusive exploitation rights to the Web-based access technology should be capitalized and accounted for in accordance with the provisions of FASB Statements No. 141 and No. 142. The specific IPR&D project with respect to the

development of a project for the U.S. market would be accounted for in accordance with the best practices herein.

3.3.89 Question 8: Company A acquired Company X in a business combination. Company X previously had purchased a unique piece of medical testing equipment for use only in a specific IPR&D project. The combined enterprise will continue to pursue the IPR&D project, and Company A reasonably expects that the combined enterprise will use the equipment only in the specific IPR&D project. The combined enterprise can measure the fair value of the equipment and related salvage value with reasonable reliability. How should Company A account for the portion of the purchase price allocated to the medical testing equipment?

3.3.90 Answer: The task force believes that Company A should immediately expense the amount allocated, less salvage value, to the medical testing equipment because the equipment does not have an alternative future use. Paragraph 11(a) of FASB Statement No. 2 says, in part:

The costs of materials, equipment, or facilities that are acquired or constructed for a particular research and development project and that have no alternative future uses and therefore no separate economic values are research and development costs at the time the costs are incurred.

EXHIBIT 3-1 Phases of Development in the Pharmaceutical Industry*

DISCOVERY RESEARCH PHASE—TWO TO FOUR YEARS

This is the earliest phase of the new drug research and development process. In the discovery research phase scientists attempt to identify, from the literally millions of molecules existing in the world, one that has a desired effect against a given disease or illness. This whole process begins with the identification of a biological “target” that appears to play an important role in causing the disease or illness in question. This target could be something that is a part of the body itself, such as a protein, receptor, or gene; or it could be something normally foreign to the body, such as a bacteria or virus. The process of identifying lead molecules (or leads) is a trial-and-error process in which tens of thousands of different molecules are tested or screened to see if they have a desirable impact on the target. For example, if the target is a particular bacteria that causes infection, those molecules that kill or inhibit the bacteria would be considered leads and scientists go on to the next phase of development. The probability of any one lead actually making it through the rest of the drug development process and becoming a product is extremely low.

EARLY DEVELOPMENT PHASE—FOUR TO SIX YEARS

The drug development phase is all about taking a lead molecule, refining it, learning how to manufacture it, and testing it for safety and efficacy. The initial testing takes place in animals and looks for toxicity and other potential safety issues that might preclude ever introducing the compound into humans. Standard predictive models are used to project these findings from animals into potential toxicity and dosing levels for humans. The first human tests (phase I) are conducted in a very small group of healthy volunteers to assess the safety and the potential dosing range. After a safe dose has been established, the drug is administered to a still relatively small population of sick patients (phase II) to look for initial signs of effectiveness in treating the targeted disease. In parallel to this animal and human testing, scientists are also developing a manufacturing process that will allow the molecule to be manufactured in a safe, efficient, and economical way. Long-term animal studies continue to test for potential toxicology issues. The early development phase is a very high-risk part of the overall process in which the vast majority of leads fail to move on to the next phase of the process. Those molecules that do show some initial signs of efficacy move on to the final phase of the research and development process, known as the product phase.

PRODUCT PHASE—THREE TO FIVE YEARS

Those molecules that move on to the product phase (phase III) have already demonstrated safety and preliminary efficacy and therefore have a much higher likelihood of success. The drug is now tested in much larger patient populations to

* As mentioned in paragraph 3.3.40.

prove efficacy in a more rigorous and statistically significant way. These trials are generally global in nature and are designed to generate all of the data necessary for inclusion in the regulatory submission documents. Often these studies will involve a comparison of the new drug with existing competitive therapies, with placebo, or both. All of the data is compiled and submitted to regulatory agencies around the world. Often there will be several exchanges of questions and answers with the regulators, and then, it is hoped, the drug is approved for marketing.

CHAPTER 4

ACCOUNTING AND DISCLOSURE OF ASSETS ACQUIRED THAT ARE TO BE USED IN R&D ACTIVITIES

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CHAPTER 4

ACCOUNTING AND DISCLOSURE OF ASSETS ACQUIRED THAT ARE TO BE USED IN R&D ACTIVITIES

4.1 ACCOUNTING QUESTIONS AND ANSWERS

4.1.01 The IPR&D Task Force identified the following questions as those where the accounting in financial statements for transactions involving the application of Financial Accounting Standards Board (FASB) Interpretation No. 4, *Applicability of FASB Statement No. 2 to Business Combinations Accounted for by the Purchase Method*, appears to reflect diversity in practice.

4.1.02 Question 1: In recording the purchase of a business, is discretion provided in the timing for recording the allocation of purchase price to assets acquired to be used in research and development (R&D) activities? For example, if information is not available to make a reasonable allocation in the period that the business combination closes, can an acquiring company employ some form of suspense accounting?

4.1.03 Answer: No. Paragraph 48 of FASB Statement of Financial Accounting Standards No. 141, *Business Combinations*, provides guidance on when an acquiring company should record the allocation to assets acquired to be used in R&D activities in connection with recording the purchase of a business: “the date of acquisition ordinarily is the date assets are received and other assets are given, liabilities are assumed or incurred, or equity interests are issued.” In addition, paragraph B183 of FASB Statement No. 141 (which retains the guidance of paragraph 36 of FASB Statement No. 38, *Accounting for Preacquisition Contingencies of Purchased Enterprises*), provides that some allocations at the purchase balance sheet date are necessarily tentative.

The Board recognizes that completion of the allocation process that is required by Opinion 16 may sometimes require an extended period of time. For example, appraisals might be required to determine replacement cost of plant and equipment acquired, a discovery period may be needed to identify and value intangible assets acquired, and an actuarial determination may be required to determine the pension liability to be accrued.

If a business combination is consummated toward the end of an acquiring enterprise’s fiscal year or the acquired enterprise is very large or unusually complex, the acquiring enterprise may not be able to obtain some of the data required to complete the allocation of the cost of the purchased enterprise for inclusion in its next annual financial report. In that case, a tentative allocation might be made using the values that have been determined and preliminary estimates of the values that have not yet been determined. The portions of the allocation that relate to the data that were not available subsequently are adjusted to reflect the finally determined amounts, usually by adjusting the preliminary amount with the corresponding adjustment of goodwill.

4.1.04 The existence of assets to be used in R&D activities in a business combination involving software, electronic devices, and pharmaceutical companies is commonplace and the guidance in paragraph 48 of FASB Statement No. 141 should be followed. Therefore, the task force believes that an acquiring company should make an allocation to assets acquired to be used in R&D activities based on its then best estimate at the same time it makes other allocations of the purchase price (that is, at the date of acquisition).

4.1.05 Best practices suggest that the acquiring company often is able to determine its final allocation to assets acquired to be used in R&D activities in the same accounting period that the business combination is consummated based on the due diligence it performs before or immediately after agreeing to the terms of the acquisition. Exceptions may be acquisitions of very large companies with significant R&D activities and hostile takeover situations. In those circumstances, the task force believes that best practice would be for the acquiring company to (a) record its best estimate within the range of possible fair values of the assets acquired to be used in R&D activities for purposes of its preliminary allocation, (b) disclose the range of significant estimates, and (c) consider the disclosure requirements of paragraphs 12 through 19 of Statement of Position (SOP) 94-6, *Disclosure of Certain Significant Risks and Uncertainties*, related to significant estimates.

4.1.06 If the initial allocation to assets acquired to be used in R&D activities is preliminary, paragraph 51(h) of FASB Statement No. 141 requires disclosure of reasons why a purchase price allocation is not final and, in subsequent periods, the nature and amount of material adjustments to the initial allocation. The “allocation period” ends when the acquiring company is no longer waiting for information it has arranged to obtain and is known to be available or obtainable. The allocation period generally should not exceed one year.

4.1.07 The task force believes that changes in the preliminary allocation to assets acquired to be used in R&D activities subsequent to the issuance of financial statements or interim information in the allocation of purchase price should then be evaluated by determining whether (a) the originally reported allocation was the result of a preliminary evaluation of an ongoing data-gathering and evaluation process, which in management’s opinion represented good faith best estimates based on the data then available, and (b) the evaluation process is finalized in a reasonable period of time subsequent to the acquisition, given the nature of the assets acquired to be used in R&D activities. If an acquiring company meets both conditions, it should record any adjustments by adjusting the preliminary amount of assets acquired to be used in R&D activities (with a corresponding adjustment to goodwill), and it should treat the adjustments as a change in accounting estimate in the period of change. If an acquiring company does not meet both of these conditions, it would report the adjustment as a correction of an error.

4.1.08 The Securities and Exchange Commission (SEC) staff had stated in Staff Accounting Bulletin Topic No. 2.A.7 (which was issued before FASB Statement No. 141) that the acquiring company should disclose the circumstance related to allocation of purchase price that is pending additional adjustments in the financial statements, including in financial statements that are part of Forms 8-K and 10-Q filings. Absent

disclosure of an open allocation period, it is the SEC staff's view that the purchase price allocation is presumed to be final.

4.1.09 Question 2: How should an acquiring company apply in-process R&D (IPR&D) accounting requirements to initial investments in common stock that are to be accounted for using the equity method, including circumstances in which the acquiring company's lack of control precludes access to reliable information on which to base a determination of the existence of IPR&D projects, estimate their fair value with reasonable reliability, or both?

4.1.10 Answer: Paragraph 19(b) of Accounting Principles Board (APB) Opinion No. 18, *The Equity Method of Accounting for Investments in Common Stock*, requires that the difference between the cost of an investment and the amount of underlying equity in net assets of an investee should be accounted for as if the investee were a consolidated subsidiary. Accordingly, the task force believes the value related to the investor's proportionate interest in assets acquired to be used in R&D activities that have no alternative future use should be charged to income in the period that the acquiring company makes its equity investment in common stock, assuming the acquiring company can satisfy the attribute of being able to estimate the fair value with reasonable reliability.

4.1.11 Paragraph 19(n) of APB Opinion 18 (as amended by FASB Statement No. 142) states:

The carrying amount of an investment in common stock of an investee that qualifies for the equity method of accounting as described in subparagraph (m) may differ from the underlying equity in net assets of the investee. The difference should affect the determination of the amount of the investor's share of earnings or losses of an investee as if the investee were a consolidated subsidiary. However, if the investor is unable to relate the difference to specific accounts of the investee, the difference shall be recognized as goodwill and not be amortized in accordance with Statement No. 142. [Footnote reference in paragraph 19(n) omitted]

4.1.12 Paragraph 4 of FASB Interpretation No. 35, *Criteria for Applying the Equity Method of Accounting for Investments in Common Stock*, provides examples of indications that an investor may be unable to exercise significant influence over the operating and financial policies of an investee. For example, paragraph 4(d) provides the following indication that the equity method may not be appropriate:

The investor needs or wants more financial information to apply the equity method than is available to the investee's other shareholders (for example, the investor wants quarterly financial information from an investee that publicly reports only annually), tries to obtain that information, and fails.

Nevertheless, the task force believes that an investee's sensitivity to maintain confidentiality with respect to the nature of its IPR&D projects may result in a circumstance in which an investor that has significant influence cannot obtain needed information to estimate the fair value of the investee's IPR&D with reasonable reliability.

Consequently, while the task force believes that an acquiring company's inability to determine fair value of assets acquired to be used in R&D activities would preclude recording a charge to income for those assets, that circumstance would not, of itself, preclude the use of the equity method of accounting.

4.1.13 The task force believes that the answer to question 1 of this chapter also applies to the allocation of the purchase price to an equity investment.

4.1.14 Question 3: How should an acquiring company classify an IPR&D charge in its statement of cash flows?

4.1.15 Answer: Best practices suggest that an acquiring company should report its cash acquisition of assets to be used in R&D activities as an investing outflow in its statement of cash flows in the line item identifying payments for the purchase of a company, net of cash acquired. The acquisition of assets to be used in R&D activities would be reported in this fashion irrespective of whether acquired through a business combination or a purchase of specific assets. In this regard, an acquiring company should treat assets acquired to be used in R&D activities similar to how it reports other acquired assets in the statement of cash flows.

4.1.16 In addition, when arriving at cash flows from operating activities under the indirect method of reporting cash flows, best practices suggest that an acquiring company should add back to net income the costs of assets acquired to be used in R&D activities that are charged to income. That adjustment is necessary to eliminate from operating cash flows those cash outflows of assets acquired to be used in R&D activities that are reflected in investing activities.

4.1.17 Question 4: Subsequent to a business combination, but before the final allocation of the purchase price, the combined enterprise abandons an IPR&D project that existed at the acquisition date and met the definition of an asset to be used in R&D activities. Should any portion of the purchase price be allocated to the IPR&D asset in the final allocation?

4.1.18 Answer: The task force believes that whether a portion of the purchase price should be allocated to the IPR&D asset in the final allocation depends on the circumstances giving rise to the decision to abandon the project. If the abandonment decision was based on circumstances that existed at the acquisition date (that is, circumstances analogous to a Type I subsequent event, as discussed in Statement on Auditing Standards [SAS] No. 1, *Codification of Auditing Standards and Procedures* [AICPA, *Professional Standards*, vol. 1, AU sec. 560], "Subsequent Events"), the task force believes that the abandoned IPR&D project should not be included in the final allocation of the purchase price. An example of such circumstances might be if management of the acquiring company had not had the opportunity to fully investigate the project as part of its due diligence procedures before the acquisition and, subsequent to the acquisition and before significant additional R&D costs had been incurred, determines that the expected economic benefits and associated risks of completion do not warrant continued funding of the project.

4.1.19 However, if the abandonment decision was based on circumstances that arose subsequent to the acquisition date (that is, circumstances analogous to a Type II subsequent event), the task force believes that the fair value of the IPR&D project should be included in the final allocation of purchase price. An example of such circumstances might be if tests of the results of post-acquisition development efforts are not promising and lead to the conclusion that the technological hurdles to successful completion cannot be realistically overcome. Another example might be if, subsequent to the acquisition, a competitor introduces a product with performance and pricing characteristics that are superior to those envisioned for the planned product.

4.1.20 Question 5: Should subsequent events after the final allocation of the purchase price cause the allocation to be revised (for example, a specific IPR&D project to which value was assigned is subsequently abandoned or significantly reduced in scope, or actual results are significantly different than the projections used to value the IPR&D project)?

4.1.21 Answer: No. Generally accepted accounting principles (GAAP) do not permit an acquiring company to consider previously unknown events that occur subsequent to the final determination of fair value of assets acquired to be used in R&D activities. For example, a decision made subsequent to the final allocation to abandon a project or subsequent factors that are the result of circumstances that developed after the final allocation have no impact on the determination of fair value as of the acquisition date of a business combination. Additionally, consistent with internally developed R&D that is subsequently abandoned or reduced in scope, or where actual results are significantly different from projections, such events do not affect the determination of the amounts already reported as having been expended for the acquired IPR&D project. As a result, the allocation of the purchase price of the business combination should not be revised.

4.1.22 Question 6: Company A acquired Company X in a business combination. At the initiation of the combination, Company X was working on one project that was in the R&D stage. At the acquisition date, Company X had completed the R&D project. Should Company A allocate any portion of the purchase price to assets acquired to be used in R&D activities?

4.1.23 Answer: No. Paragraph 35 of FASB Statement No. 141 states, in part: “an acquiring entity shall allocate the cost of an acquired entity to the assets acquired and liabilities assumed based on their estimated fair values at date of acquisition.” Because the R&D project was complete at the date of acquisition, it represents an asset resulting from R&D activities that should be capitalized as an intangible asset, provided that it meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill.

4.2 DISCLOSURE

4.2.01 In considering best practices for disclosure of assets acquired in a business combination to be used in R&D activities, the task force observed that the disclosures required by GAAP and, for SEC registrants, Regulations S-K and S-X are somewhat limited. For example, FASB Statement No. 2, *Accounting for Research and*

Development Costs, requires disclosure only “of the total research and development costs charged to expense in each period for which an income statement is presented.”

4.2.02 The task force also observes that FASB Statement No. 141 does not require disclosure of valuation methods, and assumptions or qualitative information about assets acquired. Paragraphs 51 through 57 of that Statement address required disclosures for a business combination.

4.2.03 The task force notes that the SEC staff has requested public registrants to disclose additional information about charges for IPR&D acquired in business combinations in their financial statements and in management’s discussion and analysis (MD&A). In January 1999, the SEC staff sent a letter to selected public company chief financial officers setting forth certain expectations for disclosures about IPR&D, among other things. The task force notes that the SEC staff’s letter was not specific about which disclosures should be included in the financial statements and which disclosures should be included in MD&A. Excerpts of that letter related to acquired IPR&D charges follow:

We understand that you will report significant charges in 1998 for asset write-downs, restructuring activities, or acquired in-process research and development. In connection with our focus on transparent financial reporting and potential earnings management issues, we may select your 1998 annual report for review. For your consideration as you prepare that filing, this letter identifies commonly requested MD&A and financial statements disclosures that may be applicable in whole or part to the kinds of charges you incurred.

.....

Acquired In-Process Research & Development

Disclose:

- Specific nature and fair value of each significant in-process research and development project acquired
- Completeness, complexity and uniqueness of the projects at the acquisition date
- Nature, timing and estimated costs of the efforts necessary to complete the projects, and the anticipated completion dates
- Risks and uncertainties associated with completing development on schedule, and consequences if it is not completed timely
- Appraisal method used to value projects
- Significant appraisal assumptions, such as—
 - period in which material net cash inflows from significant projects are expected to commence;
 - material anticipated changes from historical pricing, margins and expense levels; and
 - the risk adjusted discount rate applied to the project's cash flows.
- In periods after a significant write-off, discuss the status of efforts to complete the projects, and the impact of any delays on your expected investment return, results of operations and financial condition

4.2.04 In determining whether entities should provide additional disclosures about IPR&D, the task force identified the following general considerations:

- Financial statement disclosures need be provided only about items that are qualitatively or quantitatively material—individually or in the aggregate.
- Disclosures about IPR&D should be considered in the context of the financial statements taken as a whole. The extent of disclosures about IPR&D should not give undue emphasis to IPR&D when research and development is a relatively minor aspect of the overall financial activities of the company.
- To the extent that contemplated disclosures about IPR&D include forward-looking information, a public company should consider the legal implications of including those disclosures in the financial statements rather than outside the financial statements, such as in MD&A. The task force noted that the safe harbor for forward-looking information adopted in the Private Securities Litigation Reform Act of 1995 does not extend to financial statement disclosures.
- Nonpublic companies should consider making the disclosures that a comparable public company would make.

4.2.05 *Financial Statements.* Paragraph 51(g) of FASB Statement No. 141 requires disclosure of the amount of purchased R&D assets acquired and written off in the period in which a material business combination is completed and the line item in the income statement in which amounts written off are aggregated. For each acquisition having an associated material IPR&D charge, best practices suggest that an acquiring company disclose the following in the footnotes to the financial statements (both in the interim period of acquisition and in the annual financial statements of the year of acquisition):

- The portion of the purchase price assigned to each individually material project
- The technique used in each acquisition to value material assets acquired to be used in R&D activities

4.2.06 The task force developed the following sample footnote disclosures as an illustration of the disclosure requirements of paragraph 51 (e) and (g) of FASB Statement No. 141 and best practices for a significant acquisition. (Appendix C of FASB Statement No. 141 provides illustrations of some of its disclosure requirements.)

NOTE WW. SIGNIFICANT ACCOUNTING POLICIES—RESEARCH AND DEVELOPMENT EXPENSES

Company A incurred research and development expenses of \$X, \$Y, and \$Z million in 2000, 1999, and 1998, respectively, including amounts assigned to acquired in-process technology of \$200 million in 2000. The value assigned to acquired in-process technology was determined by identifying those acquired specific in-process research and development projects that would be continued and for which (a) technological feasibility had not been established at the acquisition date, (b) there was no alternative future use, and (c) the fair value was estimable with reasonable reliability.

NOTE XX. ACQUISITIONS

On October 5, 2000, Company A consummated its acquisition of Company X in a transaction accounted for as a business combination. Company X was engaged in

licensing, implementing, and supporting business network software systems, and had a well-established global service and support team. The aggregate purchase price of \$1 billion for Company X's equity consisted of approximately \$400 million in cash and the issuance of 4 million shares of Company A common stock with a market value of approximately \$600 million. In addition, short-term liabilities with a fair value of \$300 million and long-term liabilities with a fair value of \$700 million were assumed by Company A. The results of operations of Company X and the estimated fair value of the assets acquired and liabilities assumed are included in Company A's financial statements from the date of acquisition.

The purchase price was allocated to the tangible and intangible assets acquired and liabilities assumed based on Company A's estimates of fair value at the acquisition date. The purchase price exceeded the amounts allocated to the tangible and intangible assets acquired and liabilities assumed by \$785 million, and this excess was classified as goodwill.

The following table shows the allocation of the purchase price for the acquisition of Company X:

<i>Value Assigned to Assets & Liabilities</i>	
Balance Sheet Category (in millions)	Acquired
Current assets	\$ 100
Property, plant and equipment	650
Acquired in-process R&D	200
Intangible assets:	
Developed technology	175
Customer list	25
Trademarks	40
Goodwill	785
Other assets	25
Short-term liabilities	(300)
Long-term liabilities	<u>(700)</u>
Net assets	<u>\$ 1,000</u>

Approximately \$200 million of the purchase price represents the estimated fair value of acquired in-process R&D projects that had not yet reached technological feasibility and had no alternative future use. Accordingly, this amount was immediately expensed in the Consolidated Statement of Income upon the acquisition date. The value assigned to purchased in-process technology comprises the following projects: Project A (\$100 million), Project B (\$70 million), and others (\$30 million).

The estimated fair value of these projects was determined by employment of a discounted cash flow model. The discount rates used take into account the stage of completion and the risks surrounding the successful development and commercialization of each of the purchased in-process technology projects that were valued.

[Note: Required pro forma disclosures have been omitted.]

4.2.07 *MD&A*. The task force notes that the objectives and requirements of MD&A as stated in the instructions in Regulation S-K include the following:

- The purpose of MD&A is to provide to investors and other users information relevant to an assessment of the financial condition and results of operations of the registrant as determined by evaluating the amounts and certainty of cash flows from operations and from outside sources. The information provided need only include that which does not clearly appear in the registrant's financial statements.
- MD&A should focus specifically on material events and uncertainties known to management that would cause reported financial information not to be necessarily indicative of future operating results or of future financial condition. This would include descriptions and amounts of (a) matters that would have an impact on future operations and have not had an impact in the past, and (b) matters that have had an impact on reported operations and are not expected to have an impact upon future operations.

Registrants are encouraged, but not required, to supply forward-looking information. This is to be distinguished from presently known data that will affect future operating results, such as known future increases in costs. This latter data may be required to be disclosed. Any forward-looking information supplied is expressly covered by the safe harbor rule for projections.

4.2.08 The task force also notes the following considerations that could influence management's consideration of disclosures to be included in MD&A regarding IPR&D:

- IPR&D charges may materially affect the total amount of R&D expense, income from continuing operations, or trends in those amounts.
- IPR&D charges may cause reported financial information not to be necessarily indicative of future operating results.
- Purchased R&D projects represent a known event that may produce uncertainty that could reasonably be expected to materially affect future operating results, due to additional R&D expenses expected to be incurred to complete the projects and changes in revenue and profitability from changes in the product sales mix.
- Purchased R&D projects may represent a material demand on liquid resources to fund completion of the projects.
- Qualitative information about management's objectives in material acquisitions of businesses and intangibles may be helpful in understanding the financial statements "through the eyes of management."
- The SEC staff informed the task force that the staff believes that the letter to selected public company chief financial officers (see paragraph 4.2.03) continues to be relevant. That letter does not specify which of the commonly requested disclosures should appear in MD&A as opposed to the financial statements.

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CHAPTER 5

VALUATION OF ASSETS ACQUIRED

5.1 INTRODUCTION AND OVERVIEW

5.1.01 Acquiring assets in a business combination requires ascertaining the cost of the acquired company (that is, purchase price) and assigning that cost to the assets acquired and liabilities assumed. The acquiring company should assign a portion of the purchase price to the assets acquired and liabilities assumed usually equal to their fair values at the date of acquisition. Tangible and intangible assets that meet the criteria in paragraph 39 of Financial Accounting Standards Board (FASB) Statement No. 141, *Business Combinations*, for separate recognition apart from goodwill should be assigned an amount; assets acquired to be used in research and development (R&D) activities generally represent intangible assets that also should be assigned a portion of the purchase price based on their fair values if they meet that criterion. Examples of assets acquired to be used in R&D activities include patents, software copyrights, base (or core) technology, developed product technology, specific in process R&D (IPR&D) projects, and technical drawings or manuals.¹ The acquiring company undertakes procedures to specifically identify and value assets acquired to be used in R&D activities if either of the following conditions exists at the date of acquisition:

- The acquired company was conducting R&D activities.
- The acquired company has other assets that will be used in R&D activities by the combined enterprise.

5.1.02 Valuations may be used as an aid in determining the fair values of assets acquired and liabilities assumed. A valuation specialist, engaged to perform a valuation of assets acquired in a business combination for the purpose of assisting management of the combined enterprise in the allocation of purchase price, should consider the best practices set forth in this Practice Aid. This chapter of the Practice Aid provides best practices related to the valuation of assets acquired in a business combination, with an emphasis on the valuation of assets acquired *to be used in* R&D activities, including specific in-process R&D (IPR&D) projects.

5.1.03 The section of this chapter starting with paragraph 5.2 sets forth what the IPR&D Task Force believes are best practices in the acceptance, administration, and reporting of a valuation engagement in connection with the allocation of purchase price pursuant to generally accepted accounting principles (GAAP). The objective of that valuation is to estimate the *fair value* (as that term is defined by GAAP—see chapter 1) of the assets acquired and liabilities assumed, including assets acquired *resulting from* and *to be used in* R&D activities. The valuation specialist should perform appropriate procedures to estimate the fair value.

¹ The Financial Accounting Standards Board (FASB) recently issued FASB Statement of Financial Accounting Standards No. 141, *Business Combinations*, which provides guidance on which intangible assets should be recognized apart from goodwill in the allocation of purchase price in a business combination.

5.1.04 The section of this chapter starting with paragraph 5.3 sets forth best practices on the application of the multi-period excess earnings methodology. The multi-period excess earnings methodology is the most common method used by valuation specialists in estimating the fair value of assets acquired to be used in R&D activities, including specific IPR&D projects.

5.2 PROCEDURES TO BE FOLLOWED BY VALUATION SPECIALISTS

5.2.01 An acquiring company initially should decide whether it possesses sufficient expertise in-house to appropriately identify and value the assets acquired. In many cases, the expertise may not be available in-house, resulting in the need for the acquiring company to engage an independent valuation specialist to perform the valuation of the assets acquired. An acquiring company that engages an independent valuation specialist to perform a valuation would expect that the valuation specialist's work will comply with the requirements of Statement on Auditing Standards (SAS) No. 73, *Using the Work of a Specialist* (AICPA, *Professional Standards*, vol. 1, AU sec. 336), so that the independent auditor may rely on the work of the independent valuation specialist. See chapter 6 of this Practice Aid for guidance on using the work of a specialist pursuant to SAS No. 73. Whether the valuation is prepared in-house or by an independent valuation specialist, the task force believes that the valuation specialist should follow the best practices set forth in this Practice Aid.

5.2.02 Acceptance of Engagement

5.2.03 The valuation specialist should consider several factors before accepting or performing a valuation engagement. These factors include the following:

- *The purpose of the valuation.* The valuation specialist should consider the purpose of the engagement. The valuation methods employed by the valuation specialist will be determined by the reasons for the engagement because certain concepts, approaches, and standards of value may be required for certain types of engagements. For example, engagements that entail the valuation of assets acquired in a business combination are engagements to provide asset valuations that assist in forming the basis for purchase price allocations pursuant to FASB Statement No. 141, FASB Interpretation No. 4, *Applicability of FASB Statement No. 2 to Business Combinations Accounted for by the Purchase Method*, and related guidance. Therefore, the valuation specialist should be familiar with, and his or her valuation report should be consistent with, the authoritative accounting literature as it relates to assets acquired in a business combination.
- *The valuation specialist's competency to perform the engagement.* The person performing the valuation should have demonstrated competence to perform the valuation. This competence is demonstrated by the valuation specialist's prior experience in performing asset valuations (including assets acquired to be used in R&D activities), in connection with purchase price allocations pursuant to FASB Statement No. 141. The valuation specialist also would be expected to possess an appropriate understanding of the—

— Industry in which the acquired company operates and its trends and conditions.

- Operations of the acquired and acquiring companies (including their products, marketing and distribution channels, technologies, and manufacturing processes).
 - Market participants (see paragraphs 1.1.04 and 1.1.05 for guidance on the effects of market participants on the valuation).
- *Willingness to be identified as an expert.* Valuation specialists often undertake engagements for public registrants and render reports summarizing their findings and conclusions. These engagements may cause valuation specialists to be considered “experts” in the meaning of Section 7 of the Securities Exchange Act of 1933 (the 1933 Act). In current practice, when work is performed solely to assist company management in estimating the fair value of assets acquired in a business combination, and neither the valuation specialist’s name nor his or her work is referred to in a 1933 Act filing, the valuation specialist generally would not be referred to in the filing as an expert. Therefore, the valuation specialist would not sign a consent as an expert. However, on occasion, the Securities and Exchange Commission (SEC) staff has requested valuation specialists to be referred to as experts in filings with the SEC. The task force believes that valuation specialists, in the case of engagements with public companies, should be prepared to support their valuation study in discussions with the SEC staff and willing to be referred to as an expert in filings with the SEC before accepting and completing a valuation engagement.
 - *The proper identification of the assets to be valued.* An important consideration in the valuation process is the identification of what will be valued. Therefore, the valuation specialist should be familiar with, and the valuation report should be consistent with, the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill. Valuation engagements that entail the valuation of assets acquired to be used in R&D activities would identify the specific assets and IPR&D projects to be valued along with all the contributing assets. See paragraph 5.3.33 for guidance on the characteristics and attributes of assets acquired to be used in R&D activities and paragraph 5.3.54 for guidance on contributory assets.
 - *The proper date at which to value the assets.* In this case, the assets acquired resulting from and to be used in R&D activities are valued as of the acquisition date, as defined in paragraph 48 of FASB Statement No. 141, of the business combination. See paragraph 4.1.03 for guidance on the definition of the acquisition date.
 - *The appropriate premise or standard of value to be used.* In the context of allocating purchase price to assets acquired in a business combination, the valuation of assets acquired to be used in R&D activities, including specific IPR&D projects, should be consistent with the concept of *fair value* as that term is defined by GAAP. See chapter 1 of this Practice Aid for guidance on the GAAP concept of fair value.
 - *The appropriate approaches and methodologies for estimating value.* The task force believes that this chapter sets forth best practices in the use of appropriate valuation methodologies to be applied in the valuation of assets acquired to be used in R&D activities, including specific IPR&D projects. See chapter 2 of this Practice Aid for a general discussion of valuation approaches to estimating fair value of assets acquired.
 - *The relevant valuation standards and codes of ethics.* Independent valuation specialists are subject to the standards and codes of ethics set forth by numerous professional organizations to which they belong. If valuation specialists hold themselves out as certified public accountants (CPAs) or partners, principals, or staff of AICPA member firms, they also should follow rules governing CPAs (particularly the Consulting Standards found in *Professional Standards*, vol. 2, CS sec. 100.).

- *The type of report to be issued.* The results of the valuation of assets acquired to be used in R&D activities, including specific IPR&D projects, should be documented in a written report, supported by appropriate exhibits and appendixes. A key requirement of a report prepared by an independent valuation specialist is that it contain sufficient information so it can be subjected to audit procedures outlined in SAS No. 73 (see chapter 6 of this Practice Aid). A limited scope valuation engagement or calculation is where the prospective financial information is not investigated by the valuation specialist in determining its propriety for use in the valuation. The task force believes that a limited scope valuation engagement or calculation would not be sufficient for the independent auditor to reduce the nature, timing, and extent of his or her audit procedures relating to the valuation of the assets acquired. See paragraph 5.2.06 for guidance on the contents of a valuation report.
- *The possibility of a conflict of interest or the appearance of a conflict of interest.* A conflict of interest or the appearance of a conflict would include situations in which the client has the ability or appearance of an ability (through employment, ownership, contractual right, family relationship, or otherwise) to directly or indirectly control or significantly influence the valuation specialist. For example, the task force believes that a direct financial interest by a valuation specialist (or his or her firm, or principal owners of the firm) in the acquiring company or the acquired company would constitute a conflict of interest, which would necessitate disclosure in the valuation report. The task force believes that a valuation report prepared by a valuation specialist who is the subject of an actual or perceived conflict of interest may be precluded from being treated as the work of a specialist, as that term is used in SAS No. 73 (see paragraphs 6.3.28 through 6.3.32). (Also see Discussion Memorandum 99-3, *Appraisal and Valuation Services*, issued by the Independence Standards Board.)

5.2.04 Engagement Letters

5.2.05 The task force believes that independent valuation specialists should be engaged by clients using some form of written agreement (that is, an engagement letter). An engagement letter is a document that defines the terms and scope of the valuation engagement as agreed upon with the client. The engagement letter helps avoid misunderstandings and, therefore, is in the interests of both the independent valuation specialist and the client. An engagement letter usually would include the following:

- *The objective or purpose of the valuation engagement.* In this case, the objective of the valuation engagement is the performance of a valuation of assets acquired with the resultant fair value used to assist management of the acquiring company in the allocation of purchase price pursuant to FASB Statement No. 141, FASB Interpretation No. 4, and related guidance.
- *The date of the valuation.* In this case, the assets acquired to be used in R&D activities are valued as of the acquisition date, as defined in paragraph 48 of FASB Statement No. 141, of the business combination.
- *The nature and scope of the procedures to be performed.*
- *An identification of the assets to be valued.*
- *A definition of the premise or standard of value (it is also customary to include the definition in the final written report).* In this case, the premise/standard of value is *fair value*, as that term is defined by GAAP. See chapter 1 of this Practice Aid for guidance on the GAAP concept of fair value.

- *The form of the report to be delivered.*
- *The timing of the engagement.*
- *The fees to be charged for the engagement.*
- *A list of limiting conditions and restrictions on the use of the report by the party or parties that it is intended for.* Valuation specialists would be expected to make the valuation report and the related supporting documentation available to the acquiring company's independent auditors in connection with their audit of the allocation of purchase price.
- *An outline of what will be expected of the client in the engagement, such as providing the valuation specialist with the appropriate prospective financial information, and signing a representation letter at the conclusion of the engagement.*
- *Other terms and conditions, as necessary.*

5.2.06 Contents of a Valuation Report

5.2.07 The following discussion outlines the task force's conclusions regarding the content of a well-documented valuation report. The valuation specialist's report would not constitute an examination, compilation, or an agreed-upon procedures assignment as described in Statement on Standards for Attestation Engagement No. 10, *Revision and Recodification* (AICPA, *Professional Standards*, vol. 1, AT sec. 301, "Financial Forecasts and Projections"). Nonetheless, the valuation specialist will perform procedures necessary to satisfy himself or herself that prospective financial information (that is, a forecast of expected future cash flows, or PFI) is objectively verifiable (as evidenced by validating procedures), reliable, relevant, and useful to the valuation process. Best practices suggest (and some valuation standards of practice require) that the valuation specialist state in the report that he or she does not provide assurance on the achievability of the prospective results because events and circumstances frequently do not occur as expected; differences between actual and expected results may be material; and achievement of the prospective results is dependent on actions, plans, and assumptions of the responsible party (that is, the acquiring company's management).

5.2.08 *Transmittal or cover letter.* This section of the report (if prepared in this format) usually would include a signature of the valuation firm or individual. It would summarize the engagement, including information contained in the engagement letter, such as—

- Objective of the valuation.
- Purpose and function of the valuation.
- Date as of which the assets are valued.
- Premise or standard of value.
- Summary description of the assets valued.
- Scope of the assignment.
- Any limiting conditions relating to the performance of the engagement, the use of the report, or both.

Additional language may include a summary of findings or conclusions and a reference to the attached valuation study. The task force believes that there should not be any language in the report that is contradictory to the performance of best practices set forth in this Practice Aid. For example, PFI provided by management that is accepted by the

valuation specialist without having been subjected to validating procedures by the valuation specialist would contradict the performance of best practices set forth in this Practice Aid. Examples of validating procedures are outlined in paragraph 5.2.19. See Exhibit 5-2.1 for an example of a transmittal letter.

5.2.09 *Table of contents and list of exhibits/appendixes.* These typically are provided for ease of use by the reader.

5.2.10 *Certification.* Most valuation standards of practice require that the valuation specialist provide a signed certification. For example, for those specialists subject to Uniform Standards of Professional Appraisal Practice (USPAP), Standard 10, Business Appraisal, Reporting, provides appropriate wording for the certification.

5.2.11 *Limiting conditions.* Most standards of practice require a statement of those conditions that limit the activities of the valuation specialist and the use of the ultimate report. For example, section 8.3 of the American Society of Actuaries (ASA) Code of Ethics and Principles of Appraisal Practice lists mandatory limiting conditions; many valuation specialists have added language based on specific issues.

5.2.12 *Introduction or executive summary.* This is an optional section used to increase the user-friendliness of the report; it often repeats a summary of findings or conclusions as well as other details mentioned in the Transmittal or Cover Letter section, as discussed in paragraph 5.2.08. See Exhibit 5-2.2 for an example of an introduction or executive summary.

5.2.13 *The objective or purpose of the valuation engagement.* See paragraph 5.2.05.

5.2.14 *History and nature of the company's business and its assets.* This is a background section that demonstrates the valuation specialist's knowledge of the acquired company and identifies the assets to be valued. A description of the subjects that would be covered in this section includes the acquired company's business; key events affecting the acquired company; competition, including identification of key markets and market participants; technology; management; structure of the acquired company; organization of the acquired company; ownership; and physical facilities of the acquired company.

5.2.15 *Analysis of the company's industry.* This section demonstrates the valuation specialist's knowledge of the industry in which the acquired company participates and it identifies the key markets and market participants whose data will be used in analyzing the PFI. Key sources of industry data would be listed in this section. Competition would be a key topic of discussion in this section. This section is sometimes merged with the section described in paragraph 5.2.13. See Exhibit 5-2.3 for an example of an analysis of the company's industry.

5.2.16 *Analysis of the local, regional, and national economy affecting the company.* This section demonstrates that the valuation specialist has an awareness of the current economic trends and conditions that may affect the acquired company's operations. Some of the issues that are discussed in this section include: economic growth, interest rates, manufacturing capacity utilization, product demand, labor, and local and regional conditions.

5.2.17 *Financial analysis of the company.* This section demonstrates the valuation specialist's knowledge of the historical financial performance of the acquired company. This section serves, in part, as a basis for review of the PFI for the acquired company. Generally, an analysis of three to five years of historical financial data is summarized, including growth trends, ratio analysis, and common-sizing of selected financial data. See Exhibit 5-2.4 for an example of the financial analysis of the company.

5.2.18 *General description of valuation approaches/methodologies.* This section provides an overview of the valuation methods to be applied and demonstrates that the valuation specialist understands the applicable approaches and methodologies and best practices outlined in this Practice Aid. Generally, an overall description of the cost, market, and income approaches is provided, as well as specifics of the methods used for the valuation of assets acquired, including assets acquired to be used in R&D activities. In all but very rare circumstances, the multi-period excess earnings or another commonly accepted discounted cash flow methodology would be used for the valuation of intangible assets acquired to be used in R&D activities, including specific IPR&D projects. See Exhibit 5-2.5 for an example of a general description of valuation approaches.

5.2.19 *Valuation analysis.* This is the most important section of the report and would expand on the background sections described above. This section would include a discussion of the following:

- A description of the process used to identify assets for valuation and methodologies to be employed. See exhibit 5-2.5 for an example of a description of assets valued.
- A description of how assets acquired to be used in R&D activities are classified into appropriate subcomponents (for example, base [or core] technology, developed product technology, and IPR&D projects). Sufficient, objective, verifiable evidence would be presented to demonstrate that the valuation specialist has considered the relevant accounting guidance on assets acquired to be used in R&D activities regarding—
 - Control.
 - Economic benefit.
 - Measurability.
 - Substance.
 - Incompleteness.
 - Alternative future use.

This evidence would be derived from review of factual data and interviews with management and market experts. Chapter 3 of this Practice Aid describes these bulleted items.

- A listing of company data sources; documents received, read, and analyzed; interviews performed; and industry data sources used, if not mentioned elsewhere, and those market participants considered in the development of assumptions. This section's purpose is to demonstrate that the valuation specialist has considered the appropriate data and has the necessary supporting documents in his or her work files. The supporting documentation and work files would be made available to management or the independent auditor upon request.

- For each asset valued, the following topics would be covered:
 - *Assets valued pursuant to a cost approach.* Sources of data (for example, acquiring company, acquired company, market participants), nature of costs (reproduction versus replacement), method of cost aggregation (that is, actual application of approach), treatment of obsolescence, treatment of taxes, treatment of amortization tax benefit, and circumstances that lead to selection of the cost approach as opposed to other approaches. The task force notes that the cost approach is rarely used in the valuation of intangible assets acquired to be used in R&D activities.
 - *Assets valued pursuant to a market approach.* Sources of comparable data (acquiring company, acquired company, market participants), adjustments to comparable data, application of actual method, discounts or adjustments to value indications, and circumstances that lead to selection of the market approach as opposed to other approaches. The task force notes that with the exception of certain assets within limited industries (for example, pharmaceuticals), the market approach is rarely used in the valuation of intangible assets.
- *Assets valued pursuant to an income approach.* In the case of the multi-period excess earnings or another commonly accepted discounted cash flow methodology:
 - Sources of PFI (acquiring company, acquired company, financial advisers, or market participants)
 - Procedures performed to allow the valuation specialist to rely on and use the PFI
 - Adjustments made to PFI
 - Procedures performed (such as revenue splitting)
 - Sources of data and procedures performed to reflect technology migration and the existence and separate valuation of base (or core) technology and other contributory assets
 - Development of appropriate tax rates, discount rates, and contributory asset charges
 - Actual application of the method, including calculation of the amortization tax benefit

See exhibit 5-2.6 for an example of assets valued pursuant to an income approach.

In the case of the relief from royalty method (the task force notes that the use of this method in valuing specific IPR&D projects should be rare, as discussed in paragraph 2.1.15):

- Revenue forecasts (acquiring company, acquired company, financial advisers, or market participants)
 - Procedures performed to allow the valuation specialist to rely on the revenue forecasts
 - Sources of royalty or license rates (for example, internal company comparable data, external market comparable data, and publicized sources)
 - Development of discount rates and tax rates
- An affirmation that the valuation will be used in the allocation of purchase price in accordance with GAAP.

5.3 APPLICATION OF MULTI-PERIOD EXCESS EARNINGS METHOD TO ACQUIRED INTANGIBLE ASSETS

5.3.01 Overview

5.3.02 The multi-period excess earnings method is the most common method used by valuation specialists in estimating the fair value of intangible assets acquired to be used in R&D activities, including specific IPR&D projects, for purposes of allocating purchase price pursuant to FASB Statement No. 141, FASB Interpretation No. 4, and related guidance.

5.3.03 The principle behind the multi-period excess earnings method is that the value of an intangible asset is equal to the present value of the incremental after-tax cash flows attributable only to that intangible asset.

5.3.04 The application of the multi-period excess earnings method generally involves the following overall steps:

1. Select the PFI that best reflects the final purchase price.
2. Evaluate and document the key assumptions relating to the elements that make up the PFI and ascertain that the PFI reflects management's good-faith best estimates.
3. Eliminate synergies (that is, acquiring company and acquired company assumptions that are not consistent with assumptions used by market participants) from the selected PFI resulting in the "adjusted PFI." Also see paragraph 1.1.15.
4. Identify assets acquired, including assets to be used in R&D activities.
5. Confirm the existence of assets acquired to be used in R&D activities, including specific IPR&D projects.
6. Eliminate effects of non-IPR&D activities from the PFI resulting in the "final PFI."
7. Apply contributory asset charge for assets that contribute to the generation of the cash flows (that is, apply contributory asset charges to the cash flows).
8. Calculate the present value of the cash flows using a discount rate appropriate for the specific asset acquired being valued.
9. Compute the related income tax benefits resulting from the amortization of the asset acquired for income tax purposes.
10. Evaluate the overall reasonableness of the asset's fair value relative to the other assets acquired and the overall purchase price.

5.3.05 To summarize the multi-period excess earnings method, the fair value of an intangible asset acquired is estimated by deducting expected costs, including income taxes (as described in paragraph 5.3.97), from expected revenues attributed to that asset to arrive at after-tax cash flows. Such revenues and costs should reflect the assumptions that would be used by market participants. From after-tax cash flows, after-tax contributory asset charges are deducted (see paragraph 5.3.54) to arrive at incremental after-tax cash flows. These remaining cash flows are discounted to present value (see paragraph 5.3.68) and then summed. The calculation of the value of the amortization tax benefit (see paragraph 5.3.97) is added to the sum of the present values of incremental after-tax cash flows to arrive at the fair value of the intangible asset acquired. See exhibit 5-2 for a comprehensive example of a valuation analysis of intangible assets acquired to be used in R&D activities. The final step is the determination of the overall reasonableness of the asset's fair value.

5.3.06 Step 1—Select the Prospective Financial Information That Best Reflects the Final Purchase Price

5.3.07 Before consummation of a business combination, various PFI alternatives frequently are prepared. From the perspective of the acquired company, PFI often exist as a result of reports and analyses that management had prepared as part of ongoing management of technology projects and overall business operations. PFI also may have been prepared by the acquired company or its advisers as part of the selling effort (for example, offering memoranda). From the perspective of the acquiring company, PFI may have been prepared as part of due diligence procedures or as part of an overall process to determine acceptable purchase price ranges. The PFI may encompass various alternatives, including optimistic, base case, pessimistic scenarios, or all three. All PFI produced by parties to the transaction (as well as by their advisers) should be evaluated by the valuation specialist to understand the underlying assumptions and the differences between the sets of assumptions.

5.3.08 The PFI alternative that best reflects the final purchase price is the logical starting point for the valuation specialist. The valuation specialist should prepare an information request to assist in evaluating which PFI alternative best represents the alternative that was used in negotiating the final purchase price. The following information, for example, would be requested:

- Historical financial statements of the acquired company for an appropriate period of time (for example, the most recent five years)
- Transaction documents (that is, the purchase agreement and related exhibits)
- Press releases and other public disclosures of the transaction
- PFI prepared by the acquired company
- PFI prepared by the acquired company's advisers
- PFI prepared by the acquiring company
- PFI prepared by the acquiring company's advisers
- PFI prepared for lenders
- Reports of outside analysts, market experts, governmental agencies, or other third parties, that relate to the transaction
- Board of directors' presentations prepared for the acquired company
- Board of directors' presentations prepared for the acquiring company
- Technical analysis that relates to the acquired company's products or technologies (whether it be prepared by the acquiring company, acquired company, or a third party)
- Sales or marketing materials used to sell the acquired company's products and services
- Data on patents held by the acquired company
- Acquired company's analysis of its specific IPR&D projects, including analysis supporting management's approval of the projects and periodic status reports
- R&D budget of the acquired company
- Historical R&D expenditures by the acquired company
- Product road map or other similar detail of the acquired company's expected evolution from current products and technologies to future products and technologies
- Licensing agreements that exist for either the development of technologies or ultimate marketing of product manifestations
- Identification of market participants and relevant market participant data
- Government or industry publications
- Market surveys

- Engineering studies
- General economic indicators
- Industry statistics
- Trends and patterns developed from the acquired company's operating history (for example, life cycles of prior generations of products and rate of changes in average selling prices)
- Internal data and analyses, accompanied by their supporting objective evidence

5.3.09 Not all of these data sources will be available in a given transaction. At a minimum, the valuation specialist should collect data that would have been considered by the acquiring company and acquired company in performing their due diligence and agreeing upon a final purchase price. The valuation specialist also would consider significant changes that may have occurred between the date when the acquiring company and acquired company came to final terms and the acquisition date of the business combination. Upon collecting the relevant data, the valuation specialist should interview appropriate members of the acquiring and acquired companies' management teams (if relevant and applicable). Management should be in a position to state its reliance on such data when corroborative or explain its lack of reliance when contrary. The functional departments represented in such queries would include: scientific (that is, R&D), marketing, sales, finance, accounting, and operations. See paragraph 5.3.26 for additional information to be obtained during these interviews with management.

5.3.10 The valuation specialist should understand and document the process by which the PFI was prepared. To the extent that management or its advisers have a process for preparing PFI, the valuation specialist will be able to readily find the support for the PFI and determine its suitability for use in the valuation analysis. Best practices suggest that significant differences (and their underlying reasons) between the PFI used in the valuation of the acquired company and the final PFI that was presented to the acquiring company's board of directors or management (as appropriate) by the acquiring company, acquired company, or their financial advisers should be documented and reconciled. The task force believes that the valuation specialist should select the PFI that best represents the alternative that was used in negotiating the final purchase price and, therefore, is most representative for purposes of determining the fair value of the acquired company.

5.3.11 The task force believes that management of the acquiring company should take responsibility for the completeness and accuracy of the PFI alternative selected for use in the valuation analysis. Management would represent to the valuation specialist that the PFI represents management's best estimate of the most likely expected outcome of the economic benefits resulting from the assets acquired. Management also would be expected to provide the valuation specialist with data supporting the key assumptions used in the preparation of the PFI, including identification of any expected synergies. *The valuation specialist does not simply accept PFI from management without investigating its suitability for use in the valuation analysis. The valuation specialist is responsible for evaluating the methodology and assumptions used by management in preparing the PFI and concluding whether the PFI is appropriate for use in valuing the assets acquired.*

5.3.12 At this point, the valuation specialist and management should reach agreement on the PFI alternative that best represents the alternative that was used in

negotiating the final purchase price and, therefore, is most representative for purposes of determining the fair value of the acquired company. If the valuation specialist and management cannot agree on the appropriate PFI alternative, the valuation specialist would disclose the nature of its disagreement in its valuation report and the effect, if quantifiable, on the value assigned to the assets acquired. Pursuant to some professional standards of conduct, the valuation specialist also would need to consider the possibility of resigning from the engagement if the valuation specialist concludes that the management-prepared PFI is not appropriate.

5.3.13 Step 2—Evaluate and Document the Key Assumptions Relating to the Elements That Make Up the PFI and Ascertain That the PFI Reflects Management’s Good-Faith Best Estimates

5.3.14 The next step for the independent valuation specialist would be to evaluate the methodology and assumptions used by management in preparing the PFI and concluding whether the methodology and assumptions are appropriate for use in the valuation analysis. The following represents specific elements of PFI for the valuation specialist to verify and suggested sources of objective evidence that support each material assumption underlying the specific elements of PFI:

- *Revenue.* The valuation specialist’s assessment of PFI begins with an analysis of the key assumptions related to revenue from current products and revenue that is expected to result from both specific IPR&D projects and R&D projects not yet commenced, including estimated number of units expected to be sold, estimated selling prices throughout the selling period, estimated market penetration, and estimated market share. Year-over-year unit growth (or decline) rates over the product(s) life cycle(s) (that is, the period of years over which revenue is expected to be received for a given technology or related product offering) and the reasonableness of average per-unit selling prices during the period should be evaluated by the valuation specialist, giving due consideration to expected competitors’ reactions, anticipated technological developments, and historical trends. Historical financial data of the acquired company is a common source of objective evidence to support the assumptions in the PFI regarding revenue. Industry data, data from public filings of market participants, and reports generated by market research firms and industry analysts also may be sources of objective evidence to support revenue assumptions in PFI. Once these key assumptions relating to revenue are understood by the valuation specialist, management should be queried on its support for material assumptions.
- *Costs of sales.* Historical financial data of the acquired company is a common source of objective evidence to support the assumptions in the PFI regarding cost of sales. Industry data, data from public filings of market participants, and reports generated by market research firms and industry analysts also may be sources of objective evidence to support cost of sales assumptions in PFI. Valuation specialists should understand the difference between company-wide costs of sales and specific product-by-product costs of sales because costs of sales may change over a product’s life cycle and likely will differ from product to product. Valuation specialists should query management about past experience with prior product offerings and compare the trend of costs of sales for prior product offerings with those contained in the PFI.
- *Sales and marketing expense.* Historical financial data of the acquired company is a common source of objective evidence to support the assumptions in the PFI

regarding sales and marketing expense. Industry data, data from public filings of market participants, and reports generated by market research firms and industry analysts also may be sources of objective evidence to support sales and marketing expense assumptions in PFI. Product launch costs should be included in PFI if product development activities are expected to lead to the introduction of new product offerings. Product launch costs commonly are incurred during the introduction of new product offerings and can differ dramatically from routine sales and marketing expense. Objective evidence may be gathered from the acquired company's prior experience with previously launched product offerings or from industry and market participant's data.

- *General and administrative expense.* Historical financial data of the acquired company is a common source of objective evidence to support the assumptions in the PFI regarding general and administrative expense. Industry data, data from public filings of market participants, and reports generated by market research firms and industry analysts also may be sources of objective evidence to support general and administrative expense assumptions in PFI.
- *Technical support expense.* Historical financial data of the acquired company is a common source of objective evidence to support the assumptions in the PFI regarding technical support expense. Industry data, data from public filings of market participants, and reports generated by market research firms and industry analysts also may be sources of objective evidence to support technical support expense assumptions in PFI.
- *R&D expense.* Historical financial data of the acquired company is a common source of objective evidence to support the assumptions in the PFI regarding R&D expense. Industry data, data from public filings of market participants, and reports generated by market research firms and industry analysts also may be sources of objective evidence to support R&D expense assumptions in PFI.
- *Tax expense.* See paragraph 5.3.97 for guidance on the impact of income taxes on the determination of fair value of assets acquired.
- *Required levels of net working capital.* PFI may include expectations regarding working capital needs for the acquired company. Historical levels of working capital, combined with industry experience available from the public filings of market participants, typically serve as the best evidence of required levels of working capital. Such levels will further serve as an input to the calculation of future contributory asset charges in the valuation analysis. See paragraph 5.3.54 for guidance on contributory asset charges.
- *Required levels of tangible assets.* PFI may include expectations regarding tangible asset needs for the acquired company. Historical levels of tangible assets, combined with industry experience available from the public filings of market participants, typically serve as the best evidence of required future levels of tangible assets. Such levels will further serve as an input to the calculation of contributory asset charges in the valuation analysis. See paragraph 5.3.54 for guidance on contributory asset charges.
- *Required levels of intangible assets.* PFI typically does *not* include expectations regarding intangible asset needs for the business in aggregate because companies often do not budget purchases of intangible assets. Levels of other intangible assets calculated as a result of the valuation process associated with allocating the purchase price, combined with industry experience available from the public filings of market participants, typically serve as the best evidence of required levels of intangible assets. Such levels will further serve as an input to the calculation of

contributory asset charges in the valuation analysis. See paragraph 5.3.54 for guidance on contributory asset charges.

5.3.15 To the extent that the valuation specialist, in his or her judgment, does not receive sufficient support for particular PFI assumptions, the valuation specialist should investigate other client records as well as external sources in an effort to locate corroborating objective support for each material assumption. If conflicting data exists, the task force believes that the valuation specialist should challenge management to further support its assumptions or change those assumptions to be consistent with the objective evidence.

5.3.16 At this point the valuation specialist would have completed his or her evaluation of the methodology and assumptions used by management in the preparation of the PFI that best reflects the final purchase price. The valuation specialist and management should reach agreement on the methodology and assumptions used in the preparation of the PFI alternative that best reflects the final purchase price. If the valuation specialist and management cannot agree on the appropriate methodology and assumptions used in the preparation of the selected PFI, the valuation specialist would disclose the nature of the disagreement in the valuation report and the effect, if quantifiable, on the value assigned to the assets acquired. Pursuant to some professional standards of conduct, the valuation specialist also would need to consider the possibility of resigning from the engagement if the valuation specialist concludes that the management-prepared PFI is not appropriate.

5.3.17 Step 3—Eliminate Synergies From the Selected PFI, Resulting in the Adjusted PFI²

5.3.18 At this point in the valuation process, the assumptions used in the preparation of the selected PFI may include assumptions that are specific to the acquiring company and not necessarily those of market participants. Therefore, the next step in the multi-period excess earnings analysis is to remove from the selected PFI the cash flows attributed to synergies.³ Valuation methods for measuring assets should be consistent with the objective of measuring *fair value*, as that term is defined by GAAP. Those methods would incorporate assumptions that market participants would use in their estimates of values, future revenues, and future expenses. If the acquiring company pays the owners of the acquired company any significant consideration for synergistic or strategic benefits in excess of those expected to be realized by market participants, the valuation specialist would identify those excess benefits and remove them from the selected PFI. (Those excess benefits ultimately will be included in the portion of the purchase price allocated to goodwill.) The ultimate assumptions included in the selected PFI that are used to assign cost to the assets acquired should reflect the best estimate of how market participants would benefit from use of the assets acquired. Also see paragraph 1.1.15 for guidance on strategic or synergistic value.

² Synergies are acquiring company and acquired company assumptions that are not consistent with assumptions used by market participants.

³ Paragraph B174 of FASB Statement No. 141 provides that an entity may use its estimates of cash flows if market participant assumptions are not available without undue cost and effort.

5.3.19 During the data collection and management interview process, the valuation specialist should identify, document, and evaluate the reasonableness of the synergistic revenues and cost savings identified by management of the combined enterprise. Management of the combined enterprise should be queried on what unique operating efficiencies or revenue enhancements are expected to be experienced by the combined enterprise that would not be expected to be experienced by market participants. Once identified, those synergistic revenues (that is, revenue enhancements) and cost savings should be eliminated from the selected PFI.

5.3.20 Synergies unique to the combined enterprise should not be used in estimating the fair value of any asset acquired. Adjustments to the selected PFI can be accomplished by revising the revenue growth or cost savings rates from those used in the selected PFI to those of market participants.

5.3.21 *Example—eliminating cost synergies.* Company A acquired Company X in a business combination. Selling costs for Company X are 40 percent of revenues, and the rate representative of performance of market participants is 30 percent of revenues. Due to the unique size and efficiency of its distribution channel, selling costs for Company A are 20 percent (also the rate used by Company A in its PFI alternative that was used to negotiate the final purchase price). Selling costs in the PFI would be adjusted up to 30 percent, the rate representative of market participants, to eliminate a synergy specific to the acquiring company.

5.3.22 *Example—eliminating revenue synergies.* Company A acquired Company X in a business combination. Company X's product complements Company A's product. Upon acquisition, Company A's combined product offering will be unique in the market, and Company A believes that it can derive 10 percent more in revenues from both products than it or market participants could if they were to sell either product on a separate stand-alone basis. The PFI should exclude all revenues attributable to Company A's preexisting product, and the incremental 10 percent increase in revenues derived from Company X's product, which resulted from having a combined product offering.

5.3.23 *Example—eliminating income tax synergies.* Company A acquired Company X in a business combination. Company A currently does not pay income taxes because of net operating loss carryforwards. Company A does not expect to pay income taxes in the foreseeable future due to the size of the net operating loss carryforwards. In the PFI that Company A provides to the valuation specialist for use in valuing certain assets acquired to be used in R&D activities, management of Company A does not include any expected income tax payments resulting from the cash flows attributable to the acquired assets. In other words, in the PFI prepared by Company A's management, the present value of the expected future cash flows attributed to the acquired assets is the same on a pretax basis as on an after-tax basis because no income tax payments are expected.

5.3.24 The valuation specialist would adjust the PFI to include an estimate of the expected tax payments that market participants would be expected to pay on the expected future cash flows attributable to the acquired assets. The "favorable" tax attributes of Company A is a synergy and, therefore, is eliminated from the PFI used to value the acquired assets. See paragraph 5.3.97 for guidance on the impact of income taxes on the multi-period excess earnings method.

5.3.25 At this point the valuation specialist would have adjusted the selected PFI so the assumptions underlying the selected PFI would reflect the assumptions expected to be experienced by market participants (adjusted PFI). The next step in the analysis is to identify which assets acquired are to be valued by the valuation specialist.

5.3.26 Step 4—Identify Assets Acquired, Including Assets to Be Used in R&D Activities

5.3.27 At the outset of the valuation analysis, the valuation specialist and management should identify all assets acquired that can be subjected to valuation procedures (including all contributory assets, as discussed in paragraph 5.3.54). Many assets already will be identifiable from the balance sheet of the acquired company based on historical transactions. These assets typically include working capital items, such as cash, accounts receivable, inventory, and prepaid expenses. Also, tangible assets commonly appear on historical balance sheets at historical cost less accumulated depreciation. Intangible assets appear less frequently because they typically result from prior business combinations or asset acquisitions by the acquired company. Historical balance sheets often do not include intangible assets that were developed internally by the acquired company. All assets acquired will require analysis to determine their fair value in the current transaction.

5.3.28 During the analysis of historical financial data, the valuation specialist would interview management of the acquiring and acquired companies, including those responsible for marketing and technology development. During those interviews, the valuation specialist would collect company data relating to product offerings, channels of distribution, facilities, operations of the acquired company, and R&D efforts underway by the acquired company. The purpose of those interviews would be to ascertain the existence of other intangible assets not readily apparent from a reading of the historical financial data. The valuation specialist generally would have made reference to a list of potential intangible assets, such as that referenced in paragraph 5.3.60 (which references appendix A of FASB Statement No. 141) of this Practice Aid, in conducting the interviews of management. A common inquiry to management is “What is your perception of the assets you acquired?” or, alternatively, “What is your perception of the assets you sold?”

5.3.29 In the context of an acquisition of a technology-based company, assets acquired to be used in R&D activities often are part of the finalized list of assets to be valued. Therefore, the valuation specialist’s inquiry of management also would include a discussion regarding the identification and classification of assets acquired to be used in R&D activities. The valuation specialist also would review the following information in evaluating management’s identification and classification of assets acquired to be used in R&D activities:

- Presentations to the board of directors
- Offering memoranda
- Due diligence reports
- Press releases (including those of the acquired company before the business combination)
- Web site materials
- Analysts reports
- Industry reports

5.3.30 Ultimately, the valuation specialist should agree with management on a specific listing of assets to be valued, based on the facts and circumstances of the specific transaction, and the experience of management and the valuation specialist.⁴

5.3.31 The remainder of this chapter will focus on estimating the fair value of assets acquired to be used in R&D activities, including specific IPR&D projects, using the multi-period excess earnings methodology.

5.3.32 Step 5—Confirm the Existence of Assets Acquired to Be Used in R&D Activities, Including Specific IPR&D Projects

5.3.33 Once the existence of assets acquired to be used in R&D activities has been preliminarily established, the valuation specialist should evaluate and document his or her conclusion that the identified assets meet the definition of assets acquired to be used in R&D activities. Considerations in reaching such a conclusion would include an analysis of the characteristics and attributes of assets to be used in R&D activities, including specific IPR&D projects, which are discussed in detail in chapter 3 of this Practice Aid.

- *Scope of IPR&D projects.* An IPR&D project is the result of activities undertaken before the acquisition date, the costs of which qualify as R&D costs pursuant to FASB Statement No. 2, *Accounting for Research and Development Costs*, and related guidance. See paragraph 3.3.01 for guidance on the scope of R&D activities.
- *Control.* The valuation specialist should conclude and document that the acquiring company has purchased assets to be used in R&D activities that the acquiring company obtains the benefit of and controls others' access to. See paragraphs 3.2.02 and 3.3.13 for guidance on the definition of control. Evidence that indicates that the acquiring company has met the control characteristic would include—
 - Existence of patents, software copyrights, or regulatory approval.
 - Ability to sell, lease, license, franchise, or use the assets.
 - Qualitative data that indicates that the company has what it believes are defensible intellectual proprietary rights to the assets.
- *Economic benefit.* The valuation specialist should conclude that the assets acquired to be used in R&D activities are anticipated to produce an economic benefit. See paragraphs 3.2.02 and 3.3.17 for guidance on the definition of economic benefit. Evidence to be considered includes the existence of the acquired company's business plans for commercial exploitation of the technology through product offerings that were developed when it initially considered funding the project and thereafter when considering whether to continue funding the project, forward-looking statements made by management regarding anticipated economic benefits of the technology, and external market or industry data that support the significance of the potential economic benefits or substantiates the existence of an unserved or underserved market for product offerings related to the technology project. Parallel efforts to develop similar technologies by competitors also would corroborate the existence of anticipated economic benefit.

⁴ See footnote 1.

- *Measurability.* The valuation specialist should conclude and document that the value of the assets acquired to be used in R&D activities is estimable with reasonable reliability. See paragraphs 3.2.03 and 3.3.22 for guidance on the definition of measurability. The valuation specialist generally would review the business plans that address the exploitation of the technology through product offerings. These business plans should be supportable by historical data of the acquired company, other current company records, opinions of market experts either internal or external to the company, external publications, the opinion of external industry analysts, or a combination of these. The fact that assets acquired to be used in R&D activities are anticipated to have economic benefit does not, in and of itself, indicate that such benefit is estimable with reasonable reliability. Sufficient objective, verifiable evidence to support the assumptions used in the measurement process must exist to compute a reasonably reliable estimate of the fair value to be assigned to the assets acquired to be used in R&D activities.
- *Substance.* The valuation specialist should conclude and document that an R&D project has been advanced to a sufficient stage to be deemed to have substance. See paragraphs 3.2.04 and 3.3.45 for guidance on the definition of substance. Evidence to be considered includes—
 - The stage of completion of the project as evidenced in the acquired company's records, such as periodic status reports of specific IPR&D projects.
 - The treatment and emphasis given to the project in the company's product road map for the technology.
 - The acquired company's R&D budget.
 - The acquired company's R&D planning documents and related status reports.
 - R&D costs incurred by project and estimated costs to complete the project.
 - Press releases by the acquired company.
 - Presentations to the board of directors.
 - Offering memoranda.
 - Due diligence reports.
 - Web site materials.
 - Assessments made by market research firms and industry analysts.
- *Incompleteness.* The valuation specialist should conclude and document that the technology project is incomplete as of the acquisition date. See paragraphs 3.2.04 and 3.3.54 for guidance on the definition of incompleteness. Evidence to be considered includes—
 - The stage of development as indicated by the development milestones attained and yet to be reached.
 - Remaining technological, engineering, or regulatory risks to be overcome.
 - Remaining development costs to be incurred.
 - Remaining time to be spent to reach completion.
 - Probability of successful completion.

Such analysis also will be useful in determining the impact of stage-of-completion on the selection of an appropriate discount rate under the **traditional approach**. (See paragraph 5.3.81 for guidance on selection of an appropriate discount rate.)

- *Alternative future use.* The valuation specialist should conclude and document whether the assets acquired to be used in R&D activities have an alternative future use. See paragraphs 3.2.06 and 3.3.69 for guidance on the definition of alternative

future use. If assets acquired to be used in R&D activities (recognized separate and apart from goodwill) have an alternative future use, the allocated fair value of those assets would be accounted for pursuant to FASB Statements No. 141 and No. 142, *Goodwill and Other Intangible Assets*. If assets acquired to be used in R&D activities (recognized separate and apart from goodwill) do not have an alternative future use, the allocated fair value of those assets would be charged to expense as of the date of acquisition.

5.3.34 Once the existence of assets acquired to be used in R&D activities (recognized separate and apart from goodwill) has been established, the valuation specialist should remove from the adjusted PFI activities unrelated to assets acquired to be used in R&D activities, including ancillary revenues. Once removed, the remaining cash flows included in the adjusted PFI will represent the expected future cash flows to be used as the basis for estimating the fair value of assets acquired to be used in R&D activities, including specific IPR&D projects.

5.3.35 Step 6—Eliminate Effects of Non-IPR&D Activities From the PFI Resulting in the Final PFI

5.3.36 If cash flows attributable to activities that are unrelated to assets acquired to be used in R&D cannot be removed from the adjusted PFI (because those cash flows are not largely independent of the cash flows attributable to assets acquired to be used in R&D activities), a contributory asset charge would be used to remove the benefits of net after-tax cash flows associated with the activities that are unrelated to assets acquired to be used in R&D. Maintenance, consulting, service, and other ancillary revenues and costs also would be eliminated from the adjusted PFI at this step. The task force believes that ancillary revenues and costs should be excluded from the valuation analysis of assets acquired to be used in R&D activities because ancillary revenues and costs do not represent cash flows resulting *directly* from the assets acquired to be used in R&D activities. Ancillary revenues and costs are an indirect benefit. While there might be a conceptual basis for including the ancillary revenues and costs in the valuation analysis, the task force believes that it is unlikely that the ancillary revenues' contribution to the value of the assets acquired to be used in R&D activities would be significant, after taking into consideration assumptions used by market participants and applying appropriate expenses and contributory asset charges.

5.3.37 *Example—IPR&D bundled with non-IPR&D.* Company A acquired Company X in a business combination. At the acquisition date of the business combination, Company X was developing a software product. Company A plans to sell a solution that will bundle the software product (IPR&D) under development acquired from Company X with computer hardware (non-IPR&D) purchased from a third party. The solution is expected to be sold for a single price, and Company A concludes that it cannot reliably remove the revenues and costs associated with reselling the computer hardware from the PFI attributable to the software product under development. Using an estimate of the value of identifiable assets committed to the hardware reselling business (including net working capital, tangible assets, and intangible assets), a contributory asset charge is calculated and charged against the combined after-tax cash flow of the solution for the use of those assets representing the business of hardware resale. The remaining after-tax cash flows would be attributable to the software product under development.

5.3.38 At this point, the remaining cash flows included in the adjusted PFI represent the expected future cash flows that will be used as the basis for estimating the fair value of assets acquired to be used in R&D activities, including specific IPR&D projects (final PFI).

5.3.39 *PFI attributable to assets acquired to be used in R&D activities.* The forecast of future expected revenues and expenses included in the final PFI would extend only for the estimated useful life of the related assets acquired. Thus, the fair value of assets acquired to be used in R&D activities should not include the value inherent in gaining a market position that may be retained after the value of the assets acquired to be used in R&D activities has been exhausted. Except for a few specific industries (for example, pharmaceutical), best practices suggest that the estimated life typically would be presumed to not extend beyond five to seven years, unless there is objectively verifiable evidence to support a longer life for the technologies. In many cases, the estimated life would be shorter than five to seven years, which should be considered an outer limit for software and hardware technologies. However, for pharmaceutical industries, the life of a patent compound that will be marketed as a drug upon successful completion of development generally would be the patent life or the period of market exclusivity, if longer. The pattern of cash flows (for example, growth rates and profitability) would follow patterns that would be expected by market participants.

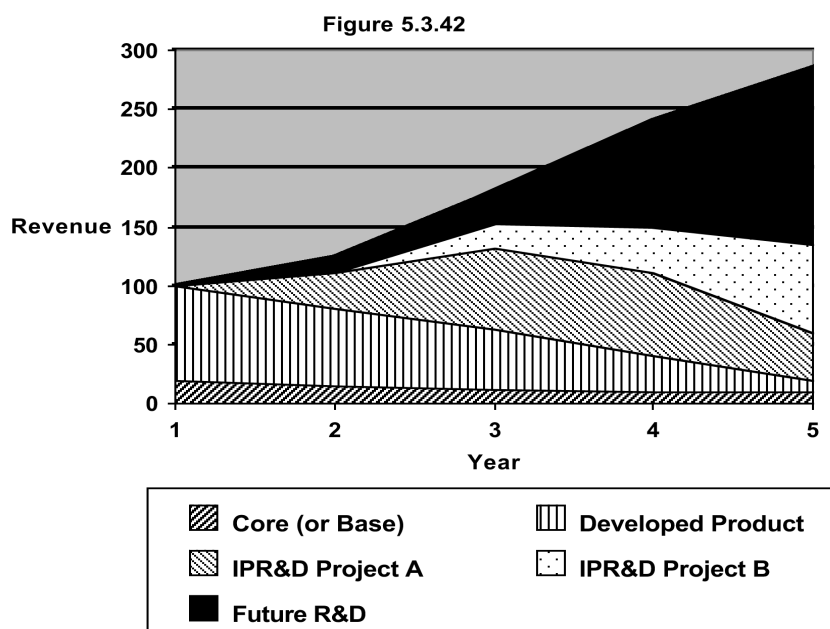
5.3.40 The final PFI should be further allocated into various subcomponents of the assets acquired to be used in R&D activities. These subcomponents of the assets acquired to be used in R&D activities may include patents, software copyrights, base (or core) technology, developed product technology, specific IPR&D projects, technical drawings or manuals, and general intellectual know-how. Each subcomponent generally would be separately identified and valued (provided that subcomponent meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill).

5.3.41 A current product's attributes and characteristics (known as functionality) are a result of the functionality of prior versions or releases of the product (referred to as base or core technology) and the functionality that was added as a result of the release of the current product (referred to as developed product technology). As future versions of the products are released, the revenue generated by those future products also will be a result of research and development that is undertaken in the future (referred to as future R&D or future technology). The forecast of expected future revenue is based on sales of products. At times, there is a direct correlation between a technology project and a new product offering. When the subcomponents of assets acquired to be used in R&D activities are used by many product offerings, or when the subcomponents will be used over numerous generations of product offerings, the valuation specialist should go through a process of assigning a portion of the revenue stream from each product offering to the subcomponents. The allocation of the cash flows to the subcomponents would consider the relative contribution of developed product technology, current R&D projects, future technology, and base (or core) technology over successive releases of products that incorporate these subcomponents (the process of allocating the cash flows is referred to as *technology migration*). The contribution of each subcomponent of technology will be based on the specific facts and circumstances. The following factors would be evaluated in determining the contribution of each subcomponent of technology:

- Historical cost to develop the subcomponent
- Dates that the development of the subcomponent began and was completed
- Economic useful life of the subcomponent

- Relative complexity of technical issues addressed and resolved by the subcomponent
- Whether the subcomponent represents unique or proprietary technology, or an alternative solution to other technologies in the marketplace
- Whether the subcomponent is (or could be) protected by patents
- Difficulty of designing around the patented technology of the subcomponent
- Whether the technology in the subcomponent allows the company to charge premium prices for the product

5.3.42 Figure 5.3.42 illustrates the contribution of the technology subcomponents to the forecast of expected future revenue included in the final PFI. In year 1 (the year immediately following the acquisition), a significant portion of the forecasted expected future revenue is attributed to the developed product technology (that is, the products that existed at the date of acquisition) with assistance from the base (or core) technology, whereas in year 5, a significant portion of the forecasted expected future revenue is attributed to R&D that is expected to be performed subsequent to the date of acquisition.



5.3.43 The allocation of value to the subcomponents (that is, technology migration) may be reflected in the final PFI as either—

- Adjustments to revenues and costs to eliminate everything but revenues and costs associated with a specific IPR&D project (known as revenue splitting).
- Contributory asset charges related to developed product technology and base (or core) technology (charges that decrease over time) and future technology (charges that increase over time).

5.3.44 The revenue-splitting method may be appropriate in circumstances where a company has numerous separable businesses; products or services; or in the case of technology, numerous subcomponents, such as base (or core) technology, developed product technology, in-process technology, and future technology. When the assets acquired (or some subset thereof) produce measurable economic benefit only in

combination with one another, the task force believes that the best way to isolate individual asset values is through a revenue splitting exercise. The splitting of revenues in this fashion for technology may be a preferable alternative to applying contributory asset charges (or economic rents) for the use of base (or core) or developed technologies. Contributory asset charges can be used in situations where the fair value of contributory assets can be separately estimated.

5.3.45 *Example—technology migration.* Company A acquired Company X in a business combination. Company X releases annually a major new version of its software products. At the acquisition date of the business combination, Company X has under development the second release of a software product (that is, Version 2 or V2). Historically each release has doubled the functionality of the product, and Company A expects this to continue. The relative contributions over multiple releases (that is, the technology migration) are estimated as follows:

	<i>PFI Year</i>				
	1	2	3	4	5
Developed product technology (Version 1)	100%	50%	25%	12.5%	6%
In-process technology (Version 2)	0%	50%	25%	12.5%	6%
Future technology	<u>0%</u>	<u>0%</u>	<u>50%</u>	<u>75%</u>	<u>88%</u>
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>

5.3.46 Upon acquisition, Company A concludes that Version 2 qualifies as an IPR&D project. Accordingly the percentage of annual forecasted revenues attributable to the IPR&D subcomponent of the project (that is, Version 2) would be only 50 percent of the forecasted revenues for year 2 (the year in which Version 2 is initially released), 25 percent of the forecasted revenues for year 3, and so on. In the example above, the revenue split does not include an allocation to base (or core) technology; therefore, the cash flows attributable to the R&D project would include a contributory asset charge associated with the base (or core) technology used by or incorporated in the R&D project. A number of factors would need to be considered in estimating the relative contributions of the subcomponent technologies, including the number of lines of code added or changed, and the functionality of the product that was added or changed by each subcomponent. The valuation specialist gathers the underlying support for the percentage allocations based on interviews with management from various departments including R&D, marketing and sales, finance, and operations. Outside verification is obtained through industry data and the valuation specialist's experience with similar companies and technologies.

5.3.47 The terms *base technology* and *core technology* are often used synonymously. The basic definition reflects the existence of underlying technology that has value through its continued use or re-use in many products or many generations of a singular product (that is, a product family). This base (or core) technology of a company may be represented by, for example, a portfolio of patents, a library of potential candidates for therapeutic drugs, or a superior manufacturing capability. The existence of base (or core) technology is dependent on facts and circumstances. In

some cases, companies “in-license” technology that serves as a core or base for their product development efforts. In other cases, base (or core) technology may not exist at all, as each new product is developed from a new or novel technology platform.

5.3.48 The concept of technology migration also indicates technology re-use from one generation of a product to the next. In that circumstance where technology migration is present, some would describe today’s developed product technology (that is, technology manifested in current product offerings) as tomorrow’s base (or core) technology (through its re-use in future product offerings). In this circumstance, especially when the re-usable technology has a one-to-one correspondence to a product family, the delineation between what may be referred to as developed product technology and base (or core) technology may blur.

5.3.49 Even when using a valuation model that splits revenues or profits, it may be necessary to set up a separate category for base (or core) technology because it derives its economic value from its use with many products or product families, as well as ongoing developmental efforts. It no longer exhibits, strictly speaking, the one-to-one correspondence that a single-product technology migration model might indicate. The consideration of a simulated royalty is one alternative to a “revenue split” model, as it effectively “profit-splits” the income stream. That royalty also can be applied against future revenues to capture continued re-use of the base (or core) technology. It is important to note that, in a valuation model that splits revenues or profits, care must be taken to ensure that proper consideration is given to all completed technology, both base (or core) and developed product technology. If the split includes a category that properly comprises both base (or core) and developed product technology, no further disaggregation is necessary. However, if the split of revenue or profits considers only the migration of developed product technology, it is necessary to provide for a separate category comprising base (or core) technology to the extent that base technology exists.

5.3.50 From a GAAP perspective, the use of two categories of technology (base/developed and in-process) versus three categories of technology (base, developed, and in-process) is significant if the categories of base and developed product technology exhibit different amortizable useful lives (because the value of both technologies is capitalized and amortized, provided each category meets the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill). However, if the useful lives are the same, developed product technology and base (or core) technology may be combined into one category in a valuation model which “splits” revenues or profits.

5.3.51 The remainder of this section of the chapter focuses on the application of the multi-period excess earnings method in the valuation of a specific IPR&D project.

5.3.52 *Revenue attributable to the IPR&D subcomponent.* At this point the valuation specialist has become satisfied that the revenue expectations specifically attributable to a specific IPR&D project have been isolated on an appropriate basis.

5.3.53 *Expenses attributable to the IPR&D subcomponent.* Expenses to be attributed to the IPR&D subcomponent should include costs of sales, selling and marketing expenses, general and administrative expenses, maintenance R&D costs (including only ongoing

charges to debug or maintain technology, once completed), costs to complete technology, any one-time roll-out or launch costs, contributory asset charges, and income taxes. Unrelated expenses, including costs of financing, should not be deducted in arriving at after-tax cash flows. All expense levels should reflect that which would be expected to be experienced by market participants, as opposed to a specific party to the transaction.

- *Technical support expense attributable to IPR&D.* In many industries, technical support is provided as part of product sales or in exchange for product maintenance fees. To the extent that such fee revenues are appropriately not included in the expected future cash flows attributable to specific IPR&D projects, it would not be appropriate for the associated expense to be included in the expected future cash flows. If, however, such technical services are incapable of being unbundled from the product sale, the appropriate level of expense should be reflected in the PFI. See paragraph 5.3.35 for guidance on the elimination of non-IPR&D activities, including ancillary revenues.
- *R&D expense attributable to IPR&D.* In the case of a project that is categorized as an asset to be used in R&D, there is generally a significant up-front expense related to R&D costs to complete. Also, there are typically ongoing expenses that may be incurred by the R&D staff, subsequent to project completion that may relate to maintenance, debugging, post-market approval surveillance, and other activities. The product roadmap of the acquired company, combined with R&D budgeting documents, will serve as primary source material evidencing appropriate levels of costs to complete and ongoing expenditures. A useful cross-check is to sum all project costs-to-complete and ongoing expenditures per year and compare to the total R&D budget or R&D expense as a percentage of sales historically for the acquired company, acquiring company, or both, and for the market participants, when relevant data is available.
- *Tax expense attributable to IPR&D.* Objective evidence to support particular assumptions used in the PFI include historical financial data, industry data, and statutory rates. Care should be taken not to reflect specific tax circumstances of the acquired company, acquiring company, or both, in choosing the effective tax rate, such as net operating loss carry-forwards, penalties, and special payments. Industry data demonstrating the effective tax rate experienced by market participants should be carefully considered and compared with company-specific data and statutory rates. See paragraph 5.3.97 for guidance on the impact of income taxes on the determination of fair value of assets acquired.

5.3.54 Step 7—Apply Contributory Asset Charge for Assets That Contribute to the Generation of the Cash Flows

5.3.55 As noted previously, the application of the income approach to the valuation of intangible assets acquired typically is performed using the multi-period excess earnings method. The fundamental premise of the multi-period excess earnings method is that the value of an intangible asset is equal to the present value of the net cash flows attributable to the subject intangible asset. The net cash flows attributable to the subject asset are those in excess of fair returns on all the assets that are necessary to the realization of the cash flows. These assets include not only assets purchased in the instant transaction, but all assets required to realize the cash flows. The acquiring company already may own some of these assets or may need to purchase them in a separate transaction, if they are necessary to generate the expected future cash flows in the aggregate. The contributory asset charges would be

based on the fair value of the contributing assets (for example, fixed assets and customer list). After-tax cash flows of each intangible asset are charged after-tax amounts representing a *return of* and a *return on* these contributory assets based on the fair value of such contributory assets.

5.3.56 These fair returns are frequently called contributory asset charges, capital charges, or economic rents. They represent the contribution of other assets to the overall value realized for a particular intangible asset (for example, an IPR&D project).⁵

5.3.57 The principle behind a contributory asset charge is that each IPR&D project “rents” or “leases” from a hypothetical third party all the assets it requires to produce the cash flows resulting from its development, that each project rents only those assets it needs and not the ones that it does not need, and that each project pays the owner of the assets a fair return on (and of, when appropriate) the fair value of the rented assets. Thus, any net cash flows remaining after such charges are attributable to the subject IPR&D project.

5.3.58 For self-constructed assets, such as customer lists, the cost to replace them (that is, the return of value) typically is included in normal operating costs and, therefore, already is factored into the PFI as part of the operating cost structure. Likewise, the return of fixed assets can be included in a cost structure as depreciation or amortization. Because this component of return is already deducted from the subject revenues, the returns charged for these assets would include only the required *return on* the investment and not the *return of* the investment in those assets. Where returns of the asset are not included in the operating cost structure, a return on and of value would be charged.

5.3.59 *Types of contributory assets.*⁶ Capital charges should be made for all assets (including elements of goodwill) that contribute to the realization of the expected future cash flows. Similarly, capital asset charges would not be made for assets that do not contribute to the expected future cash flows (for example, land held for investment should not be considered as a basis for a charge if it is not necessary for the generation of expected future cash flows).

5.3.60 Assets make a contribution to the expected future cash flows by supporting the realization of those cash flows. Examples of assets that may be charged for and the type of contributions that they make include—

- *Working capital*—Realizing cash flows from the commercialization of a new product or service requires working capital for investment in receivables, inventory, and other short-term assets. Whereas certain projects may have negative working capital balances, the expectation is that a positive working capital balance is associated with each project over the medium to long term. Working capital makes a contribution to the project by allowing and supporting the normal business cycle.

⁵ See Gooch & Grabowski, 1976, and Gooch, 1993.

⁶ The word *asset* is used loosely in the context of contributory assets. The task force recognizes that FASB Statement No. 141 results in no allocation of purchase price to intangibles that do not meet the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill (some of which are described here as “contributory assets”). Regardless of whether an intangible is a separately recognized asset for financial reporting purposes, best practices suggest that “contributory asset” charges include charges for certain intangibles that do not meet the criteria in paragraph 39 of FASB Statement No. 141 for separate recognition apart from goodwill.

- *Fixed assets*—Fixed assets allow for the physical production of products; the workspace for the marketing, sales, and logistics functions for both tangible and intangible products; and the facilitation of general management functions and corporate overhead. Although the exact nature of the contribution of a particular desk to a specific IPR&D project is most likely unknowable, a reasonable estimation would be used (for example, an allocation of fixed asset charges on the basis of revenue).
- *Intangible assets*—In addition to the above, business combinations may include other assets. Paragraph A14 of FASB Statement No. 141 lists examples of intangible assets that meet the criteria for recognition as a separate asset apart from goodwill, including: marketing-related intangible assets; customer-related intangible assets; artistic-related intangible assets; contract-based intangible assets; and technology-based intangible assets. In addition, certain intangibles may make a contribution to expected future cash flows even if they are not recognizable under FASB Statement No. 141. For example—
 - *Workforce-based assets*—Intangibles that relate to the value of the established employees or workforce of a company:
 - Assembled workforce and trained staff
 - Nonunion status, strong labor relations, and favorable wage rates
 - Superior management or other key employees
 - Technical expertise
 - Ongoing training and recruiting programs

5.3.61 As with working capital and fixed assets, a return should be charged for the use of each asset as appropriate. However, a careful analysis would be made to determine which assets contribute to which projects. Many contributory assets benefit most or all projects, including current technologies. The total return earned by an asset should be spread over the projects that benefit from that asset. The aggregate return calculated for a contributory asset should be allocated to the individual projects acquired. A project that uses twice as much of a contributory asset than another project should incur twice the capital charge. When objective use information is available, it forms the basis of a capital charge allocation. In the absence of reliable data, a reasonable assumption is used. Capital charges generally are allocated to projects based on the relative revenue of each project. When an asset is not expected to contribute to a particular project, its return is not charged against that project (its return is, however, charged against all of the projects to which it does make a contribution).

5.3.62 *Basis for determining charges.* Contributory asset charges should be based on the concept that the owner of that asset should reasonably expect to get a return on and of the fair value of the asset that is commensurate with the risk of that asset and the returns earned by market participants on similar assets. The fair value of the asset may not be the same as the current carrying value or the value recorded in the allocation of the purchase price.

5.3.63 The fair value of contributory assets may be expected to change over time. For example, working capital may be assumed to remain a constant percentage of sales and, therefore, would be expected to change as the estimate of future sales changes. It should be noted that a technology-based business may have high scalability relative to working capital, fixed assets, and possibly other assets (for example, a software company may be able to grow revenue ten-fold without significantly increasing its fixed assets).

5.3.64 The following table provides examples of assets typically charged for and the basis for determining the fair return, and it presumes the return of the asset is reflected in the operating costs when applicable (for example, depreciation expense). The capital asset charge is the product of the asset's fair value and the required rate of return on the asset.

Asset	Basis of Charge
Working capital	Short-term lending rates for market participants (for example, working capital lines or short-term revolver rates)
Fixed assets (for example, property, plant, and equipment)	Financing rate for similar assets for market participants (for example, terms offered by vendor financing), or rates implied by operating leases, capital leases, or both (typically segregated between returns of [that is, recapture of investment] and returns on).
Workforce (which is not recognized separate from goodwill), customer lists, trademarks, and tradenames	Weighted average cost of capital (WACC) for young, single-product companies (may be lower than discount rate applicable to a particular project—see paragraph 5.3.90).
Patents	WACC for young, single-product companies (may be lower than discount rate applicable to a particular project—see paragraph 5.3.90). In cases where risk of realizing economic value of patent is close to or the same as risk of realizing a project, rates would be equivalent to that of the project.
Other intangibles, including base (or core) technology	Rates appropriate to the risk of the subject intangible. When market evidence is available it should be used. In other cases, rates should be consistent with the relative risk of other assets in the analysis and should be higher for riskier assets.

5.3.65 *Contribution for unallocated purchase price.*⁷ The general principle of contributory asset charges is to provide a return on the fair value of all assets necessary for the realization of the cash flows. In deciding whether a contributory charge for elements of goodwill is appropriate, the valuation specialist first would determine if the other assets, including intangibles, represent all the assets necessary to support those particular cash flows. Generally, the allocation of value to acquired intangibles and the consideration of other intangibles (that is, intangibles from sources other than the subject purchase, such as the acquiring company's existing intangibles) would provide all of the necessary contributory asset charges.

⁷ See footnote 4.

5.3.66 However, if the identification of other assets explains only a small portion of the consideration, further analysis is required. The valuation specialist should determine the likely sources of the unidentified value and their relationship to the subject asset. Significant unidentified value may be attributable to a synergistic or market premium paid by the buyer (this value would not, under the fair value premise, be associated with the individual assets). If the valuation specialist believes that the unidentified amount is a synergistic premium, it is not an asset that is required to realize the subject cash flows.

5.3.67 *Period of charge.* Returns should be charged over the period that the subject project requires such assets. In the case where a project requires an asset that has an economic life of three years but the project has a life of six years, the capital asset charge would be over the entire six years. The assumption is that the investment in that asset is replaced over time as the asset is amortized and that the subsequent new investment requires the same type of return that the original investment required. It should be noted that the continuation of charges over the life of the project (versus the asset life) prevents the unreasonable situation where the later project cash flows are “free” money (that is, are not reduced by capital charges).

5.3.68 Step 8—Calculate the Present Value of the Cash Flows Using a Discount Rate Appropriate for the Specific Asset Acquired Being Valued

5.3.69 As noted previously, the most common method used by valuation specialists to estimate the fair value of an intangible asset is the multi-period excess earnings method. Under this method, the future after-tax net cash flows expected to arise from the ownership of an identified intangible asset are discounted to their present value using an after-tax discount rate. In applying the multi-period excess earnings method, valuation specialists most often rely on a best estimate of future cash flows, which are discounted at a single, all-in interest rate. An issue addressed by the task force is whether this technique for estimating fair value is acceptable under GAAP.

5.3.70 Before FASB Concepts Statement No. 7, *Using Cash Flow Information and Present Value in Accounting Measurements*, guidance about the appropriate use of present value techniques in accounting was limited and not always consistent.

5.3.71 The task force observes that the technique typically used in the application of the multi-period excess earnings method is similar to the **traditional approach**, as described in FASB Concepts Statement No. 7. The acceptability of the traditional approach from the viewpoint of GAAP is found in several references in the accounting literature. Although perhaps more suited for measuring the fair value of assets with contractual cash flows, the task force notes that the traditional approach is one measurement alternative described in FASB Statement No. 121, *Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of*. That Statement provides guidance about estimating the fair value of long-lived assets, including intangible assets, following a determination that an impairment in an asset should be recognized. Specifically, paragraph 7 of FASB Statement No. 121 notes that in the absence of a market price for a long-lived asset:

The estimate of fair value shall consider prices of similar assets and the results of valuation techniques to the extent available in the circumstances. Examples of valuation techniques include *the present value of estimated future cash flows using a discount rate commensurate with the risks involved*, option-pricing models, matrix pricing, option-adjusted spread models, and fundamental analysis. [Emphasis added]

5.3.72 Paragraph 9 of FASB Statement No. 121 provides guidance about estimating cash flows for purposes of measuring impairment, requiring that it should be the “best estimate based on reasonable and supportable assumptions and projections.” The FASB acknowledged in paragraph 89 of that Statement that the language in paragraph 9 allows the use of either a single most likely estimate or a range that considers the probability of possible outcomes. The latter alternative (described in FASB Concepts Statement No. 7 as the **expected cash flow approach**) is discussed more fully in the following paragraphs. In reaching this conclusion, the FASB determined that it was more useful to permit techniques that were currently available and to allow for the use of new techniques that may be developed in the future rather than to prescribe specific techniques.

5.3.73 The task force reasoned that if the traditional approach was acceptable in estimating the fair value of similar assets under FASB Statement No. 121, the income approach used by valuation specialists was an acceptable technique to estimate the fair value of intangible assets acquired in a business combination accounted for under FASB Statement No. 141.⁸

5.3.74 In FASB Concepts Statement No. 7, the FASB concludes that fair value is the objective in using present value in measurements at initial recognition and fresh start measurements of assets. Although acknowledging that the simplicity of the traditional approach has caused it to enjoy a broad acceptance in practice, the FASB describes the expected cash flow approach as generally a superior measurement technique. This approach uses expected cash flow measurements discounted at the risk-free rate of interest. The FASB notes that the improvement in the measurement capabilities of the expected present value (which is the result of the expected cash flow approach) is particularly true in situations involving the complexities encountered in measuring the fair value of nonfinancial assets, including intangible assets.

5.3.75 Expected cash flow is defined as “the sum of probability-weighted amounts in a range of estimated amounts; the estimated mean or average.” For example, if the population of future cash flow outcomes was \$10, \$100, and \$1,000, which had probabilities of occurring of 10 percent, 40 percent, and 50 percent, respectively, the expected cash flow is \$541 ($[\$10 \times 10\%] + [\$100 \times 40\%] + [\$1,000 \times 50\%]$). If it is assumed for the purposes of this example that all the outcomes would occur one year from today, the expected present value of the cash flow is \$515.24 using a discount rate (risk-free rate of return) of 5 percent

⁸ The proposed FASB Statement, *Accounting for the Impairment or Disposal of Long-Lived Assets and for Obligations Associated with Disposal Activities*, addresses the appropriate use of present value techniques when measuring the fair value of an asset or asset group. The task force recommends that entities follow the developments of that proposed Statement.

(\$541/[1 + .05]). Note that in this example, the best estimate of future cash flow as is used in the traditional approach is \$1,000 because it is the most likely outcome based on probabilities. To arrive at the same present value amount (that is, \$515.24) using the traditional approach, the rate necessary to discount the best estimate of \$1,000 would be approximately 94 percent. This example illustrates one of the principal differences between the traditional approach and the expected cash flow approach. That is, the expected cash flow approach focuses on the variations in the amount and timing of estimated cash flows and their relative probability of occurrence, whereas the traditional approach attempts to capture those same factors by focusing on the selection of an interest rate that is commensurate with the risk. To employ the latter approach requires that a similar asset with similar cash flow characteristics exists in the marketplace and the rate of return implicit in its market price may be measured. For many unique nonfinancial assets, including IPR&D, the task force observes that comparable items in the market may be very difficult to identify.

5.3.76 FASB Concepts Statement No. 7 notes that the following five elements of a present value measurement, taken together, capture the economic differences between assets:

- a. An estimate of the future cash flow, or in more complex cases, series of future cash flows at different times
- b. Expectations about possible variations in the amount or timing of those cash flows
- c. The time value of money, represented by the risk-free rate of interest
- d. The price for bearing the uncertainty inherent in the asset or liability
- e. Other, sometimes unidentifiable, factors including illiquidity and market imperfections

5.3.77 In selecting a discount rate to determine the present value of future cash flow under the expected cash flow approach, in theory, only the third element (risk-free rate of return) is needed because elements *b*, *d*, and *e* are incorporated in the cash flows. In practice, it may be more practical to adjust the risk-free rate of return to compensate for systemic risks (see paragraph 69 of FASB Concepts Statement No. 7) rather than attempting to adjust estimates of future cash flows for these risks. Adjustments to the discount rate are needed for elements *b*, *d*, and *e* in applying the traditional approach.

5.3.78 The FASB notes that many CPAs routinely do not use the expected cash flow approach and, therefore, may be reluctant to depart from the apparent simplicity of the traditional approach, arguing the high level of subjectivity involved in assigning probabilities to cash flow outcomes. However, the FASB observes that the subjectivity is no greater than that involved in selecting a discount rate under the traditional approach. The FASB also notes the explicit assessment of the probabilities associated with the possible cash flow outcomes provides computational transparency compared with selecting a discount rate commensurate with the risks.

5.3.79 The task force notes that the use of probability-adjusted cash flows is more commonplace in the pharmaceutical, insurance, natural resource, and other industries in which management has developed a reasonable basis for estimating relative probabilities. Accordingly, the task force believes the expected cash flow approach should be used by companies with relevant historical experience to estimate the fair

value of intangible assets, including IPR&D. Exhibit 5-1 includes an example of the application of the expected cash flow approach in a pharmaceutical setting.

5.3.80 The task force notes that FASB Concepts Statement No. 7 states, “Like any measurement, the application of an expected cash flow approach is subject to a cost-benefit constraint. In some cases, an entity may have access to considerable data and may be able to develop more than general statements about the variability of cash flows without incurring considerable cost.” The task force expects that, in practice, the traditional approach will continue to serve as the method that often will be used to estimate the fair value of an intangible asset acquired, including assets acquired to be used in R&D activities. Nevertheless, the task force encourages the discipline embodied in explicitly addressing the variability in the timing and amount of cash flows.

5.3.81 *Selection of discount rates.* The following paragraphs describe the process for selecting discount rates for valuing specific IPR&D projects under the traditional approach.

5.3.82 GAAP prescribes that, under the traditional approach, the appropriate discount rate used to determine present value is the rate commensurate with the risk. That is, in addition to the time value of money (risk-free rate of return), the discount rate should include the premium that market participants command for bearing the uncertainties in the estimates of future cash flows from the IPR&D project.

5.3.83 Estimates of future cash flows from new product launches are subject to a variety of risks or uncertainties, including—

- Time to market.
- Market and customer acceptance.
- Viability of technology.
- Regulatory approval.
- Competitor response.
- Price/performance characteristics.

5.3.84 Unlike business investment projects involving the launch of previously developed products, the cash flow estimates for an IPR&D project have the added uncertainty associated with the completion of the development effort (that is, whether the development effort will result in the new knowledge or technology that is a necessary first step to achieving the cash flows anticipated from its commercialization). In addition, the relative success of the development effort and the timing of the development project’s completion have a significant effect on the subsequent risks and uncertainties associated with its commercialization. Accordingly, the task force believes that risk premiums for IPR&D projects should be significantly higher than projects involving the application of existing knowledge or technology.

5.3.85 The task force believes that the risk premium should decrease as a project successfully proceeds because the uncertainty about accomplishing the necessary first step, and as a result each subsequent step, diminishes. Accordingly, the uncertainty about the cash flows that are estimated to arise from commercialization of a successful project should decline as the project proceeds. Unfortunately, observable markets for the risk premiums that are charged by market participants to fund IPR&D projects do

not exist, let alone provide insight on how those premiums are likely to vary as progress to completion of projects is made. In the absence of a market, identification of observable rates charged in similar or comparable risk situations is the next best approach. Many times, however, the search for specific comparables may prove unsatisfactory. It is in this context that valuation specialists often find themselves when valuing specific IPR&D projects acquired as part of a business combination.

5.3.86 The task force concluded that practice could be improved by providing fences (or ranges) within which discount rates for specific IPR&D projects are presumed to fall. Where the selected rate falls in that range is influenced by the stage of completion of the project. The task force cautions valuation specialists that very early stage projects may not have progressed to the point that reasonably reliable estimates of cash flows from the commercial exploitation of the development effort can be made. The task force believes that valuation specialists should be skeptical about whether the fair value of acquired IPR&D projects that have had only limited activity can be estimated with reasonable reliability.

5.3.87 For acquired IPR&D projects that the valuation specialists have concluded are estimable with reasonable reliability, the task force observed that the projects often have risk profiles similar to early stage development enterprises funded by venture capital financing. The task force noted that venture capital continues to be an important source of R&D funding. As such, it provides an observable market for the cost of capital used to fund R&D activities. The task force noted that venture capital financing was better characterized as equity financing, because commercial lending, at least in the early stages of development, is unlikely.

5.3.88 The task force identified two publications that provide guidance about the rates of return commanded by venture capital investors at various stages of an entity's development. A summary is set forth in table 5.3.88.

Table 5.3.88
Rates of Return

Stage of Development	Plummer⁹	Scherlis and Sahlman¹⁰
Start-up	50%–70%	50%–70%
First Stage or “Early Development”	40%–60%	40%–60%
Second Stage or “Expansion”	35%–50%	30%–50%
Bridge/IPO	25%–35%	20%–35%

⁹ Plummer, James L., *QED Report on Venture Capital Financial Analysis* (Palo Alto: QED Research, Inc., 1987).

¹⁰ Scherlis, Daniel R. and William A. Sahlman, *A Method for Valuing High-Risk, Long Term, Investments: The Venture Capital Method* (Boston: Harvard Business School Publishing, 1987).

5.3.89 As described in the publications referenced in table 5.3.88, start-up stage investments typically are made in companies that are less than a year old. The venture funding is to be used substantially for product development, prototype testing, and test marketing. Early development stage investments are made in companies that have developed prototypes that appear viable and for which further technical risk is deemed minimal, although commercial risk may be significant. Companies in the expansion stage have usually shipped some product to customers (including beta versions). Bridge/IPO stage financing covers such activities as pilot plant construction, production design and testing, as well as bridge financing in anticipation of a later initial public offering.

5.3.90 The task force concluded that in developing a range of discount rates to be used in valuing IPR&D under the traditional approach, the rate of return expected for start-up investments could be used as the upper boundary for the selection of a discount rate for early stage IPR&D projects. The task force concluded that, once an IPR&D project is complete, a premium over the weighted average cost of capital (WACC) observable for young, single-product companies in the acquired company's industry segment could be used to approximate a market discount rate for projects with similar risks. For practical purposes, the task force observes that the use of the WACC without the premium may be a reasonable approach. These rates would serve as the lower boundary for discount rates used for completed R&D projects (that is, developed product technology). The task force noted that young, single-product companies in the same industry segment are more likely to exhibit risk characteristics similar to completed IPR&D projects. The task force believes that an IPR&D project should be thought of as an early stage entity, even if it is actually being conducted by an established or diversified entity. Therefore, the best way to estimate an appropriate discount rate for assets to be used in R&D activities, including specific IPR&D projects, would be to determine the WACC of several early stage entities that intend to provide the same or similar products or services. The task force noted that it was inappropriate to use the WACC of a large or diversified entity for valuing IPR&D because the goal of valuation is to approximate the rates of returns required by market participants on the project assets. Entities whose value is based partially on such items as established brand names, significant financial resources, or a diversified (and thus less risky) product line will generally have a lower WACC, reflecting these less risky operations.

5.3.91 The task force also observed that the WACCs for such young, single product companies are not unlike the rates commanded by venture capital investors for bridge/IPO investments. In developing anecdotal evidence for this observation, the task force considered WACCs for young, public companies (market capitalization less than \$250 million) in industry segments for which IPR&D projects are often identified (that is, Internet software and services, biotechnology, and networking and communication devices). The results of this test (which may change as market conditions change in the future) are shown in table 5.3.91.

Table 5.3.91.
Weighted Average Cost of Capital in Young, Public Companies

	<u>Number of Companies</u>	<u>Expected Returns*</u>		
		<u>Mean</u>	<u>Trimmed Mean**</u>	<u>Median</u>
Networking and Communication Devices	25	19.9%	19.5%	19.6%
Biotechnology	62	19.3%	19.3%	19.2%
Internet Software and Services	20	29.3%	28.1%	25.6%

* The returns computations use a size-adjusted capital asset pricing model,¹¹ assuming a risk-free rate of 6%, a market premium of 7.8%, and size adjustment of 3.3%. Betas were retrieved from Hoover's Online by selecting all companies in the indicated sub-industry with a market capitalization less than or equal to \$250 million. The capital asset pricing model and basic input data (long-term treasury rate, MRP, size adjustments) were taken from Ibbotson Associates: Stocks, Bonds, Bills, and Inflation 1998 Yearbook: Market Results for 1926-1997, pp.162-165.

** Excludes the smallest and largest 5% of observed returns from the computation.

¹¹ In developing the statistics in this table, the task force made use of the size-adjusted Capital Asset Pricing Model (CAPM). CAPM is one of several asset return models. The use of the CAPM in the task force's report is not intended to proscribe the use of other widely accepted approaches to estimating an entity's cost of equity capital. Rather, the task force chose to use a version of the CAPM to illustrate the goals of arriving at an estimated weighted average cost of capital (WACC) when valuing in-process research and development because of its broad acceptance in the finance community. The task force notes that debt financing is not commonly used to finance the entities that the task force believes are appropriate proxies. This simplifies the WACC estimation to estimating the required return on equity of proxy entities. The formula used, together with an explanation of the variables used, is as follows:

$$K_e = r_f + \beta \times (r_m - r_f) + P$$

Each of these inputs is discussed in further detail below.

Risk-free Rate (rf): The risk-free rate is the return on government securities with a term similar to that of the investment being valued.

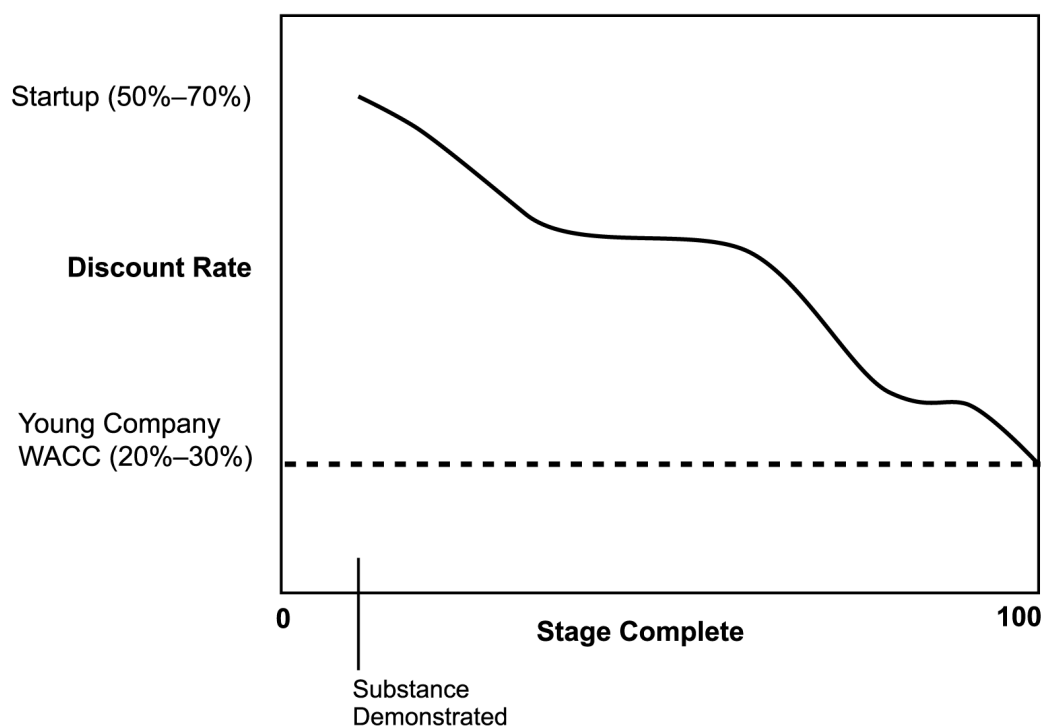
Market Risk Premium (MRP = $r_m - r_f$): The market risk premium (MRP), also known as the equity risk premium, is defined as the additional rate of return over the risk-free rate that is expected by investors from investments with systematic risk equal to the "market" portfolio. The market portfolio can be thought of as a broadly diversified investment portfolio, often thought of as the return on an index such as the S&P 500.

Beta (β): The theory and application of beta as a modifier of the MRP are well documented and widely accepted. Beta is a measure of the risk of an entity's stock relative to the risk of a diversified portfolio (the MRP). Rather than explain the nature of how to estimate beta, the task force notes that there are many available sources of betas. Because the estimation procedure is not controversial, those sources may normally be relied on.

Size Premium (P): Research has shown that small companies have larger betas than large companies. The adjustment is necessary because small stocks outperform large stocks, even after adjusting for the systematic risk (beta) of small stocks. This phenomenon is widely known as the size effect.

5.3.92 The task force's conclusions about the expected behavior of discount rates over the life of an IPR&D project and the presumed lower boundary from which discount rates may be selected for young, single-product companies are illustrated in figure 5.3.92.

Figure 5.3.92 Discount Rates Used to Value IPR&D



5.3.93 Paragraph 39 of FASB Statement No. 2 states, “There is normally a high degree of uncertainty about the future benefits of individual research and development projects, *although the element of uncertainty may diminish as a project progresses* [emphasis added].” Accordingly, the selection of the discount rate in the range between the upper and lower boundary would be based in part on stage of completion. That is, earlier stage projects would be closer to the upper boundary, whereas a project nearing completion would be expected to be closer to the lower boundary. As progress toward completion is made, the task force expects discount rates would behave in a “step” fashion, reflecting the reduction of risk as progress is achieved. That is, even though development activities may be taking place, technological or engineering risk may not be reduced until a particular hurdle has been accomplished.

5.3.94 One reasonable approach to determine the point in the range of discount rates that would be selected for a particular project would be to analyze each performance step, milestone, or task in the project and assign a weight to those steps, milestones, or tasks based on their relative technical complexity. It would not be expected that each step or task would necessarily reduce technological risk in the same proportion. If, for example, the cumulative weighting for steps or tasks completed at the acquisition date indicates that half of the technological complexity had been solved, the rate to be selected should fall at or above the rate in the midpoint of the range for stage of completion.

5.3.95 Paragraph 47 of Statement of Position (SOP) 81-1, *Accounting for Performance of Construction-Type and Certain Production-Type Contracts*, notes that stage of completion (or progress toward completion) generally is best measured by output measures in circumstances in which a reliable measure can be established. Output measures (for example, milestones, units produced or delivered, and value added) measure progress directly. Where output measures are not reliable, input measures or efforts expended should be used as an indirect measure of progress.

5.3.96 As figure 5.3.92 also illustrates, discount rates may vary for reasons other than stage of completion (that is, at each stage of completion there may be a range of discount rates). Where in this range of discount rates a particular IPR&D project falls requires the consideration of a variety of factors and ultimately, the application of judgment. Some of the factors that should be considered and their impact, at least directionally, on the judgment reached are as follows:

- *Industry segment.* Industries or subsegments within an industry may be characterized by, for example, rapid technological or competitive change. The task force believes that the discount rates for companies in those industries or subsegments would be at the higher range of possible rates. For example, within the software industry, products of enterprise software developers may be characterized by structured development projects for software that are expected to have long useful lives (for example, five to seven years). In contrast, products of Internet software developers would be expected to have shorter useful lives. A discount rate selected for IPR&D projects of enterprise software developers would be expected to be lower than Internet software developers.
- *Nature of expected product, service, or process to be developed.* The development of a new product, service, or process would be expected to have greater commercial risks than a significant improvement to a product that has achieved commercial success.
- *Length of time to complete the project.* The longer the development horizon, the greater the risk that the expected market for the new product, service, or process will change.
- *History of the company bringing products to commercial success.* The more experience the company has with successfully completing development of products and bringing those products to market, the lower the risks about the company's ability to assess the status of the project and the greater the likelihood of commercial success.
- *Competitive position.* If the IPR&D project is expected to introduce a product that will be the first to market, expectations about commercial success may be higher than a project that will result in a follow-on product.

5.3.97 Step 9—Compute the Related Income Tax Benefits Resulting From the Amortization of the Asset Acquired for Income Tax Purposes

5.3.98 The task force believes that the valuation of an intangible asset would include (a) the expected tax payments resulting from the cash flows attributable to the intangible asset and (b) the tax benefits resulting from the amortization of that intangible asset for income tax purposes.¹² Including the tax effects in the valuation is common in the

¹² As noted in paragraph 41 of FASB Concepts Statement No. 7, *Using Cash Flow Information and Present Value in Accounting Measurements*, "interest rates used to discount cash flows should reflect assumptions that are consistent with those inherent in the estimated cash flows." That is, assumptions about taxes and discount rates should not result in double counting their effects.

income and cost approaches. It is not typical in the market approach because any tax benefits already would be factored into the quoted market price through the negotiation of market participants during the bid-and-ask process.

5.3.99 When the business combination is structured as an asset sale for tax purposes (as opposed to a stock sale), practice typically includes the associated tax benefits in the valuation of the assets acquired because it is assumed that the assets acquired will be amortized for both book and tax purposes. When a stock sale occurs without a corresponding change in the bases of assets acquired and liabilities assumed for tax purposes, some have argued that no tax benefit should be included in the valuation of the intangible assets acquired because the buyer will not amortize the intangible assets acquired for income tax reporting purposes.

5.3.100 Before FASB Statements No. 96 and No. 109, *Accounting for Income Taxes*, the net-of-tax approach was used in assigning values to assets acquired and liabilities assumed in a business combination. Under the net-of-tax approach, the future tax effects of differences between fair values and tax bases and timing of those tax effects (that is, discounting) were considered in assigning values to assets acquired and liabilities assumed. Thus, before FASB Statements No. 96 and No. 109, deferred tax assets and liabilities were not recognized in a business combination.¹³ FASB Statement No. 109 prohibits the net-of-tax approach and requires assets acquired and liabilities assumed to be recorded at their “gross” fair value.

5.3.101 Paragraph 129 of FASB Statement No. 109 states:

Paragraph 89 of APB Opinion 16 stated that “. . . the fair value of an asset to an acquirer is less than its market or appraisal value if all or a portion of the market or appraisal value is not deductible for income taxes.” The Board believes that the net result is the same whether amounts assigned to the individual assets acquired and liabilities assumed are pretax or net-of-tax. For example, assume that the (a) pretax market or appraisal value of depreciable assets acquired in a purchase business combination is \$1,000, (b) tax basis of those assets is zero, and (c) enacted tax rate is 40 percent for all years. If net-of-tax, the assigned value of those assets would be \$600. If pretax, the assigned value of those assets would be \$1,000, and there would be a \$400 deferred tax liability. Under either approach, the net result of allocating the purchase price is the same. The Board concluded that the amounts assigned to assets and liabilities in a purchase business combination should not be net of any related deferred tax liability or asset.

In either case, the acquired intangible asset in this example would be assigned a cost of \$1,000 for financial reporting purposes.

5.3.102 This issue should not be confused with the need to apply taxes to pretax income streams to apply a particular valuation method, such as a discounted cash flow method. A willing buyer would factor into the amount that it would be willing to pay the seller to acquire

¹³ See EITF Issue No. 96-7, “Accounting for Deferred Taxes on In-Process Research and Development Activities Acquired in a Purchase Business Combination.”

the seller's business all incremental cash flows that inure to the benefit of that buyer. Those incremental cash flows would be reduced by expected income tax payments using appropriate tax rates. The task force believes that the determination of fair value would take into account future income taxes that a market participant purchasing the asset would be expected to pay, without regard to how the transaction is structured for income tax reporting purposes (that is, whether the transaction is structured to result in a change in bases of assets acquired and liabilities assumed for income tax reporting purposes). The task force also believes that the fair value of an intangible asset would include the value of the tax benefit resulting from the *amortization* of that asset because FASB Statement No. 109 requires that the cost assigned to an acquired intangible asset be the same whether the asset is acquired piecemeal or in a nontaxable business combination in which the asset had no corresponding tax basis. If the value of the tax benefit resulting from the amortization of that asset were not included in the fair value of the intangible asset, it would have the impact of stating that asset on the balance sheet "net of tax." The task force believes that only after the fair value is determined would the asset's assigned value be subjected to the deferred tax accounting requirements of FASB Statement No. 109. That is, the deferred tax calculation is performed only after the determination of fair value is made.

5.3.103 Question 1: If Company A acquires the assets of Company X in a transaction structured as an asset acquisition for income tax reporting purposes, and the allocation of purchase price for financial reporting purposes includes an intangible asset that is valued using a discounted cash flow method, would the expected future income taxes to be paid resulting from the pretax expected future cash inflows to be generated by the acquired intangible asset be deducted from the pretax cash flows in calculating the fair value of the acquired intangible asset?

5.3.104 Answer: Yes. As discussed in paragraph 5.3.102, the application of the discounted cash flow method would capture after-tax cash flows resulting from ownership of the subject asset being valued.

5.3.105 Question 2: Assume the same set of facts as in 5.3.103. In addition, the acquired intangible asset is deductible for income tax reporting purposes on a straight-line basis over a fifteen-year life. Company A values the acquired intangible assets using a discounted cash flow technique with a 45 percent discount rate. Because the transaction was structured as an asset acquisition, there is a change in the bases of the assets acquired for income tax reporting purposes. Further assume the following regarding the acquired intangible asset:

	Year 1	Year 2	Year 3
Estimated:			
Pre-tax cash flows	\$1,000	\$1,000	\$1,000
Income taxes @40%	400	400	400
After-tax cash flows	600	600	600
Present-value factor @45%	.6897	.4756	.3280
Present value of estimated after-tax cash flows	414	285	197
Sum			<u>\$ 896</u>

The estimated income tax benefit that results from amortization of the intangible asset for income tax reporting purposes is \$381 ($[\$896+381]*40\%$), using a market participant assumed 40 percent income tax rate. The present value of those estimated income tax benefits is \$56, using a discount rate of 45 percent and a fifteen-year life for income tax reporting purposes. Should the fair value allocated to the intangible be \$896, representing its value before consideration of tax deductibility, or \$952, representing the value assuming the acquired intangible asset is amortizable for income tax reporting purposes?

5.3.106 Answer: \$952. As discussed in paragraph 5.3.98, the valuation of an intangible asset would include the tax benefits resulting from the amortization for income tax reporting purposes of that intangible asset.

5.3.107 Question 3: Assume the same facts as paragraphs 5.3.103 and 5.3.105, except that the transaction was structured as a stock acquisition for income tax reporting purposes (that is, a nontaxable business combination). Because the transaction was structured as a stock acquisition instead of an asset acquisition, no change occurs in the bases of the assets acquired for income tax reporting purposes. The specific intangible asset under analysis has no tax basis. Should the fair value allocated to the intangible asset be \$896, representing its value without assuming tax deductibility (that is, reflecting that no tax benefits will result from the asset), or \$952, representing the value assuming the acquired intangible asset is amortizable for income tax reporting purposes irrespective of the asset's actual tax attributes?

5.3.108 Answer: \$952. As discussed in paragraph 5.3.98, the valuation of an intangible asset would include the tax benefits resulting from the amortization of that intangible asset for income tax reporting purposes. In addition, as discussed in paragraph 5.3.102, the tax benefits associated with the amortization of that intangible asset would be included in the valuation of the intangible asset without regard to whether the transaction was structured as a taxable (that is, change in tax bases of assets acquired) or nontaxable business combination (that is, no change in tax bases of assets acquired).

5.3.109 Step 10—Evaluate the Overall Reasonableness of the Asset's Value Relative to the Other Assets Acquired and the Overall Purchase Price

5.3.110 The valuation specialist should reconcile the individual asset valuations to an overall business enterprise valuation of the acquired company to ensure consistency of assumptions. Feedback should be solicited from management and their advisers to establish that the valuation analysis “hangs together.” To the extent that differences of opinion exist, they should be reconciled and documented in an objective and supportable fashion.

5.3.111 A business enterprise valuation assists the valuation specialist in concluding on the appropriateness of PFI. The determination of business enterprise value is beyond the scope of this Practice Aid.

EXHIBIT 5-1
Pharmaceutical IPR&D Valuation Example: Expected Cash Flow Approach*

Pharma Inc. acquired ABC Company, a developer, manufacturer, and marketer of pharmaceutical products. One of the assets acquired in the business combination was a research and development (R&D) project involving a compound that has possible application in the treatment of certain cancers. At the acquisition date, the compound was entering Phase II Clinical Testing in preparation for possible approval by the U.S. Food and Drug Administration. Two possible indications (tumor types) for the compound, that is, colorectal and prostate, were under development. The probabilities of success at each phase based on historical experience are given in the following table. The probability of success for each indication is independent of the probability of success for the other, and neither indication has an alternative future use.

<u><i>Development Phase</i></u>	<u><i>Probability of Advancing</i></u>
Phase II	15%
Phase III	75%

Based on these indicators, the probabilities of reaching a commercial launch for each indication is 11.25 percent (15% x 75% = 11.25%).

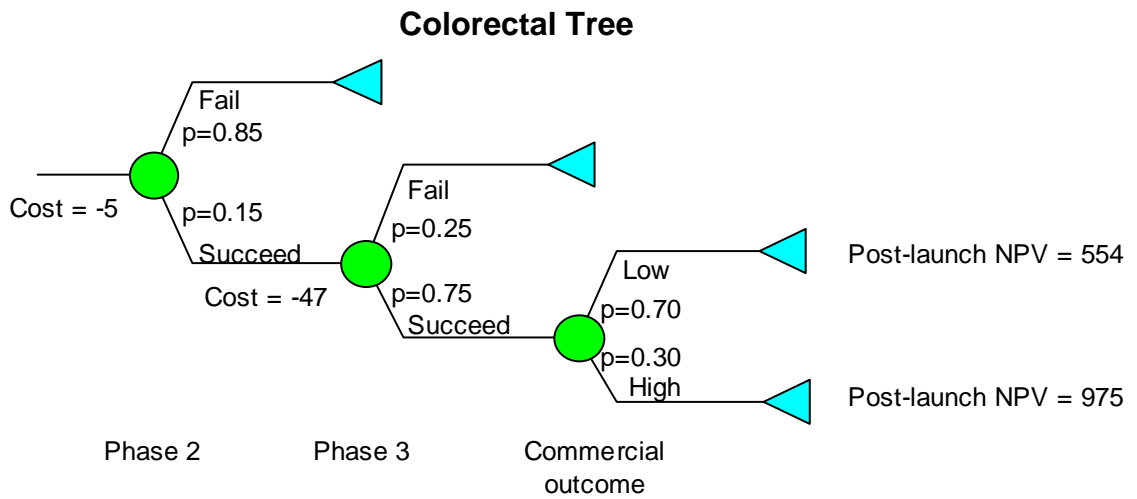
The after-tax development costs for each indication are \$5 million for Phase II and \$50 million for Phase III. It is estimated that it will take one year to complete each phase, with all costs assumed to occur at the beginning of the period. The estimated cash flows following a commercial launch for the two indications (assuming an eight-year commercial life) are summarized in the following table. All amounts are in millions of dollars after income taxes. The computation of the net present value (NPV) of those cash flows is discounted using the risk-free rates of return applicable to the period (for simplicity, this has been assumed to be a single rate of 6 percent throughout the yield curve).¹ The NPV amounts are computed to the start date of the remaining development effort. For each indication, the probability of a high market potential is 30 percent and a low market potential is 70 percent. The estimates for the probability of success were based on historical experience with similar compounds.

* As mentioned in paragraph 5.3.79.

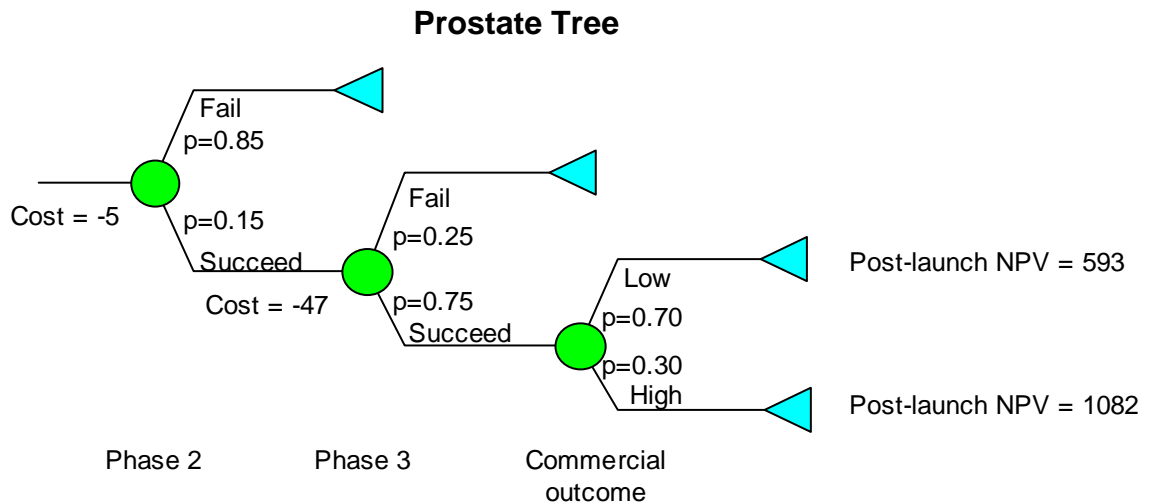
¹ The use of the risk-free rates in this example is not intended to imply that the price for bearing uncertainty is captured solely in the expected cash flows. As discussed in paragraph 62 of Financial Accounting Standards Board (FASB) Concepts Statement No. 7, *Using Cash Flow Information and Present Value in Accounting Measurements*, the estimate of fair value should include the price that market participants are able to receive for bearing the uncertainty of the cash flows.

		Post-Launch Year								
		1	2	3	4	5	6	7	8	NPV
Colorectal										
High		-61	43	122	195	281	305	329	342	975
Low		-50	35	80	100	160	180	190	190	554
Prostate										
High		-68	47	135	217	311	339	366	379	1082
Low		-56	39	90	105	166	190	205	210	593

The following tree diagrams show the present value of the cash flows and related probabilities for each indication:



The probability-weighted present value of cash flows for the colorectal indication equals \$64.5 million.



The probability-weighted present value of cash flows for the prostate indication equals \$71.2 million.

Because the probabilities and values associated with the two indications are independent of one another, the expected present value for the compound is the sum of the expected present value for each indication, or \$135.7 million.

An example of the computations associated with the amounts determined here are as follows for the colorectal indication.

Commercial outcome—Low:	$\$554 \times .70 \times .75 \times .15$	=	\$43.63
Commercial outcome—High:	$\$975 \times .30 \times .75 \times .15$	=	\$32.91
Cost for Phase III:	$-\$47 \times .15$	=	<u>-\$7.05</u>
Cost for Phase II:	$-\$5 \times 1.00$	=	<u>-\$5.00</u>
			\$64.50 rounded

EXHIBIT 5-2.1
Sample Valuation Report—Transmittal Letter

March 31, 2002

Acquiring Company
Address
City, State, Zip code

In accordance with your authorization, we have made an investigation and valuation of the intangible assets of

Target Company

headquartered in Mountain View, California, and hereby submit our findings in this report.

The purpose of this valuation is to provide an opinion as of January 21, 2002 (also referred to as the acquisition or valuation date) of the fair value of the intangible assets, in connection with the acquisition by Acquiring Company (Acquiror) of the stock of Target Company (Target) for approximately \$50 million. It is understood that our findings will serve to assist management in their allocation of the purchase price to the intangible assets acquired by Acquiror for financial reporting purposes under U.S. generally accepted accounting principles (GAAP). This valuation report is intended solely for the information and use of the managements of Acquiror and Target, Acquiror's independent auditors, and the respective companies' legal counsel. It is not to be used, circulated, quoted, or otherwise referred to for any other purpose, including, but not limited to, the registration, purchase, or sale of securities, nor is it to be filed with or referred to, in whole or in part, in a registration statement or any other document, except that reference may be made to it in documents filed with the Securities and Exchange Commission upon our express written consent.

For financial reporting purposes, the *fair value* of an asset is defined as the amount at which the asset could be bought or sold in a current transaction between willing parties, that is, other than in a forced or liquidation sale. Quoted market prices in active markets are the best evidence of fair value and would be used as the basis for the measurement, if available. If a quoted market price is not available, the estimate of fair value should approximate the price at which the asset would be expected to be bought or sold in a current transaction between a willing buyer and seller and would be based on the best information available in the circumstances. The estimate of fair value should consider prices for similar assets and the result of valuation methods to the extent available in the circumstances. The method selected to determine fair value should be consistent with the definition of fair value, as defined by GAAP. The method should incorporate assumptions that market participants would use in their estimates of fair values, future revenues, future expenses, and discount rates (if applicable).

Historical and prospective financial data furnished to us by management was subjected to procedures consistent with the AICPA Practice Aid titled *Assets Acquired in a Business Combination to Be Used in Research and Development Activities*, and the data was deemed to represent business operations and conditions.

Our report consists of the following:

1. This letter, identifying the assets valued, stating the objective and extent of the valuation, and presenting the conclusions of fair value.
2. A narrative report, setting forth the purpose and scope of the valuation, the history and nature of the business, economic perspectives, industry conditions, a description of the assets valued, a presentation and correlation of the valuation techniques employed, and the conclusion of fair value, including associated exhibits, assumptions (including related support) and limiting conditions, certificate of appraiser, and general service conditions.
3. Exhibits, comprising—
 - a. Exhibit A Valuation Summary
 - b. Exhibit B Business Enterprise Value (BEV)
 - c. Exhibit C Existing Technology—Product PT
 - d. Exhibit D-1–D-4 Technologies Under Development
 - e. Exhibit E Stage of Completion Analysis
 - f. Exhibit F Tax Benefit Amortization Calculation
4. Statements of Assumptions and Limiting Conditions, Certificate of Appraiser, and General Service Conditions. (*Note to reader: these are not provided in this Practice Aid.*)

Working papers underlying the valuation are retained by the valuation specialist and are available upon request and acquiror consent.

The intangible assets valued include the existing software technology, which includes base (or core) technology and developed technology; technologies under development; three noncompete agreements; an established trademark/trade name; and an installed customer base.¹ All current assets, tangible assets, other assets, and goodwill associated with the product and professional services businesses were not subject to independent valuation in this report. However, many of those assets were incorporated into the valuation of the intangible assets through contributory asset charges. In addition, the effects of the professional services business (activities that are not in-process research and development [IPR&D]) were eliminated from the prospective financial information used to value acquired IPR&D (see exhibit B to this report).

For the purpose of this valuation, audited historical financial statements, unaudited financial information, other records and documents, and prospective financial information (PFI) pertaining to the business operations and assets valued were furnished. We make no representations about the achievability of this PFI. Actual results may differ, and these differences could be material. We have not performed agreed-upon procedures, a compilation, or an examination of the PFI as contemplated by the AICPA standards covering such matters. However, we have performed certain procedures to test the reasonableness of this PFI for use in the valuation process. These procedures include, among others: (1) comparison of changes in unit volumes and average selling prices over the life cycle of the technology with historical changes

¹ The FASB recently issued FASB Statement No. 141, which provides guidance on determining which intangible assets should be recognized apart from goodwill in the allocation of purchase price in a business combination.

experienced by the Target, Acquiror, and the industry (per analysts' reports); (2) comparison of expected costs as a percent of revenue with historical results for the Target, Acquiror, and the industry comparables; (3) changes in unit prices over the life cycle of the technology with historical changes experienced by the Target, Acquiror, and the industry (per analysts' reports); and (4) preparation of a business enterprise value that compares the PFI, in aggregate, to the purchase price paid. Explanations were obtained for differences identified in these comparisons and the reasonableness of the explanations was investigated. Based on these procedures, we have determined that the PFI are reasonable and appropriate for use in reaching a conclusion of fair value for the intangible assets.

Based on the investigation and analysis outlined above and on the valuation approaches, methods, and techniques employed, it is our opinion that, as of January 21, 2002, the fair value of the acquired intangible assets² of Target, is reasonably represented in the aggregate amount of \$18,493,600, distributed as follows:

Existing technology	6,398,100
Technologies under development	7,892,100
Noncompete agreements	1,849,200
Trademark/trade name	546,200
Customer list	<u>1,808,000</u>
Total	<u>\$18,493,600</u>

A valuation summary is provided as exhibit A to this report.

Respectfully submitted,

Valuation Specialist or Firm

² See footnote 1.

EXHIBIT 5-2.2

Sample Valuation Report—Introduction

1. The purpose of this valuation is to provide an opinion as of January 21, 2002 (also referred to as the acquisition or valuation date) of the fair value of the intangible assets, in connection with the acquisition by Acquiring Company (Acquiror) of the stock of Target Company (Target). It is understood that our findings will serve to assist management in their allocation of the purchase price to the intangible assets acquired by Acquiror for financial reporting purposes under U.S. generally accepted accounting principles (GAAP). This valuation report is intended solely for the information and use of the management of Acquiror and Target, Acquiror's independent auditors, and the respective companies' legal counsel. It is not to be used, circulated, quoted, or otherwise referred to for any other purpose, including, but not limited to, the registration, purchase, or sale of securities, nor is it to be filed with or referred to, in whole or in part, in a registration statement or any other document, except that reference may be made to it in documents filed with the Securities and Exchange Commission upon our express written consent. Furthermore, it is understood that financial accounting and reporting for the acquisition includes consideration of the following accounting pronouncements and guidance:³

- Financial Accounting Standards Board (FASB) Statement of Financial Accounting Standards No. 141, *Business Combinations*
- FASB Statement No. 142, *Goodwill and Other Intangible Assets*
- FASB Statement No. 2, *Accounting for Research and Development Costs*
- FASB Interpretation No. 4, *Applicability of FASB Statement No. 2 to Business Combinations Accounted for by the Purchased Method*
- AICPA Practice Aid *Assets Acquired in a Business Combination to be Used in Research and Development Activities*

2. For financial reporting purposes, the *fair value* of an asset is defined as the amount at which the asset could be bought or sold in a current transaction between willing parties, that is, other than in a forced or liquidation sale. Quoted market prices in active markets are the best evidence of fair value and would be used as the basis for the measurement, if available. If a quoted market price is not available, the estimate of fair value should approximate the price at which the asset would be expected to be bought or sold in a current transaction between a willing buyer and seller and would be based on the best information available in the circumstances. The estimate of fair value should consider prices for similar assets and the result of valuation methods to the extent available in the circumstances. The method selected to determine fair value should be consistent with the definition of fair value, as that term is defined by GAAP. The method should incorporate assumptions that market participants would use in their estimates of fair values, future revenues, future expenses, and discount rates (if applicable).

³ See footnote 1. In addition, FASB Interpretation No. 6, *Applicability of FASB Statement No. 2 to Computer Software*, and Statement of Position 98-1, *Accounting for the Costs of Computer Software Developed or Obtained for Internal Use*, should be considered, if applicable.

3. The intangible assets valued include the existing software technology, which includes base (or core) technology and developed technology; technologies under development; three noncompete agreements; an established trademark/trade name; and an installed customer base.⁴ All current assets, tangible assets, other assets, and goodwill associated with the product and professional services businesses were not subject to independent valuation in this report. However, many of those assets were incorporated into the valuation of the intangible assets through contributory asset charges. In addition, the effects of the professional services business (activities that are not in-process research and development [IPR&D]) were eliminated from the prospective financial information used to value acquired IPR&D (see exhibit B to this report).

4. Historical and prospective financial data furnished to us by management were subjected to procedures consistent with the AICPA Practice Aid titled *Assets Acquired in a Business Combination to Be Used in Research and Development Activities*, and the data were deemed to represent business operations and conditions.

5. For the purpose of this valuation, audited historical financial statements, unaudited financial information, other records and documents, and prospective financial information (PFI) pertaining to the business operations and assets valued were furnished. We make no representations about the achievability of this PFI. Actual results may differ, and these differences could be material. We have not performed agreed-upon procedures, a compilation, or an examination of the PFI as contemplated by the AICPA standards covering such matters. However, we have performed certain procedures to test the reasonableness of this PFI for use in the valuation process. These procedures include, among others: (a) comparison of changes in unit volumes and average selling prices over the life cycle of the technology with historical changes experienced by the Target and the industry (per analysts' reports); (b) comparison of expected costs as a percent of revenue with historical results for the Target and its industry comparables; (c) changes in unit prices over the life cycle of the technology with historical changes experienced by the Target and the industry (per analysts' reports); and (d) preparation of a business enterprise value that compares the PFI, in aggregate, to the purchase price paid. Explanations were obtained for differences identified in these comparisons and the reasonableness of the explanations was investigated. Based on these procedures, we have determined that the PFI are reasonable and appropriate for use in reaching a conclusion of fair value for the intangible assets.

⁴ See footnote 1.

EXHIBIT 5-2.3

Sample Valuation Report—Industry Conditions (Internet)

6. The Internet market is a constantly evolving and highly volatile market, characterized by rapid technology developments and frequent new product introductions. The needs of the graphics professional are rapidly changing to encompass online publishing as well as print-based publishing. The consumer software market, which is focused on digital imaging and Web publishing, is characterized by intense competition, price sensitivity, brand awareness, and strength in retail distribution. The dynamic media market is an increasingly competitive market as professionals, enthusiasts, and home users migrate away from analog video tools toward digital camcorders and digital video production.

7. The success of the Internet in streamlining business-to-consumer commerce is encouraging companies to seek similar efficiencies in their transactions with other businesses. Companies are increasingly using the Internet to enter new markets, improve supply chains, and meet the challenges of increased competition and global markets. Forrester Research estimates that U.S.-based Internet commerce between companies will grow from \$109 billion in 1999 to \$1.3 trillion in 2003. Forrester Research further estimates that by 2003 this market for business-to-business transactions will be more than ten times larger than the related business-to-consumer transactions market.

8. Initial efforts by businesses to reduce transaction costs and increase commerce efficiency focused on automating supply chains, particularly for the purchase and sale of raw materials, unfinished items, and other direct goods. Most large companies have historically relied upon enterprise resource planning (ERP) and supply chain automation systems to increase the efficiency of their internal procurement processes for direct goods. These systems are based on complex client-server architectures that are designed to be used by a relatively small number of sophisticated users. In addition, since ERP solutions do not typically tie the corporation with its suppliers or customers, they do not address any transaction costs or inefficiencies that are external to the organization.

9. A variety of point-to-point solutions have been developed to address procurement cycle inefficiencies for both buyers and suppliers. The most successful of these has been to integrate electronic data interchange (EDI) into existing ERP systems. EDI has gained wide acceptance in automating the sale and procurement of selected direct goods, principally in environments characterized by high-dollar-volume transactions with a few suppliers. However, because EDI relies on the execution of certain predefined transactions, it typically is not well suited for situations involving many buyers and suppliers, a wide variety of goods and services, or numerous low-dollar-volume transactions. Moreover, EDI does not support real-time interactions between trading partners, making it difficult for buyers to obtain up-to-date supplier information about price, availability, and order status. Finally, the expense and complexity associated with licensing, implementing, and managing both ERP and EDI solutions makes them unsuitable for all but the largest organizations.

10. Similar efforts have been made to improve the procurement process for indirect goods and services, which include information technology and telecommunications equipment, office equipment and supplies, travel and entertainment, professional services, and other repeat purchase items. The purchase and sale of these goods constitute a large portion of

business-to-business transactions. The process of procuring these goods often involves thousands of internal users, as numerous work groups, departments, and divisions within an enterprise are involved in the purchase of indirect goods and services. As a result, the indirect goods procurement process is also mired in several inefficiencies, including high purchasing costs (as paper-based, manual processes still dominate this process), wasted time on low-value activities within purchasing departments, and poor communication between buyers and suppliers.

11. A number of desktop-based requisitioning solutions have been introduced to focus on automating the indirect goods and services procurement processes within the enterprise. These solutions serve to enforce purchasing policies and improve the efficiency of supplier management, buying authorization, approval routing, and order processing. However, these buyer-focused approaches offer limited ability to address the costs and inefficiencies associated with the supplier side of the transaction. They also typically lack the interactivity users need to check prices, availability, and order status, while they also generally fail to provide a mechanism to automatically update supplier information relating to these areas. Consequently, both internal users and suppliers must still rely upon costly, manual phone- and fax-based processes to interact and conduct commerce.

12. Accompanying the growth in the use of the Web has been a trend toward customer self-service. Just as consumers have extensively used automated teller machines rather than using the services of a bank teller, the Web now allows a wide range of businesses the ability to offer electronic self-service to their customers. For example, consumers are now shopping for goods and services and seeking answers to customer service questions on their own from their computers at any hour of the day. The Gartner Group estimated that by 2001 companies would receive 25 percent of all customer contacts and inquiries over the Web, through e-mail messages and other Web-based forms. Companies are using this Web-based customer interaction to augment more traditional means of handling customer service and commerce, such as telephone-based customer service. Rather than replacing the technology systems designed to support telephone-based customer service, companies are actively seeking ways to integrate their various forms of customer interaction, such as Web communications, e-mail, and the telephone. Businesses are seeking solutions such as Target's products to coordinate these various media and present a consistent interface to their customers for service and commerce.

EXHIBIT 5-2.4

Sample Valuation Report—Historical Financial Analysis

INTRODUCTION

13. Target, a California-based software and professional services company, has brought historic photographic shots and technology together by creating digital catalogs and portfolios. These relational databases, filled with digitized photographs of historical significance, allow Target's customers to browse through thousands of historical shot pieces on their own time. Target's Web-enabled solutions provide the support that editorial teams need. Target's customer list includes many of the nation's leading newspapers and magazine publishing companies.

14. Target grew from a start-up with five people in 1995 to a company employing fifty-four people and on track for over \$30 million in revenue for fiscal year 2002. Target's sales are derived only from the U.S. market. Target's existing product offering was introduced in 1999 and is nearing the end of its life cycle.

15. The digital imaging industry is subject to rapid and significant technological change, and frequent introductions of new competitive products. To remain competitive, Target will be required to continue to invest substantially in research and development, enhance its existing products, introduce new competitive products, and maintain price/performance advantages in its selected markets.

16. Target's research and development programs are focused on advancing digital imaging software technologies that strengthen its core product and service offerings. Target devotes substantial resources to ensure that its evolving technology roadmap is aligned with the technology direction of industry-leading vendors. This is evidenced by Target's current research and development of its next generation software technologies, all of which are discussed in detail in this report.

SOFTWARE GROUP

17. Target's Web-ready software solutions reduce costs, increase sales, and maximize the customer's technology investment. Product PT, a high-performance publishing tool, connects management, sales, customer service, and production teams simply and efficiently, enhancing relationships with customers and partners at every point of contact. Whether for a small publishing group or multinational enterprise, Target has the solutions for today's business needs.

18. Product PT combines digital images and company data in powerful, simple-to-use applications. The users can create targeted material in seconds. Preformatted layouts make it easy to produce custom layouts, visual portfolios, and merchandised assortments. Web capabilities link everyone in the user's supply chain in one collaborative environment.

PROFESSIONAL SERVICES

19. Target's professional services group provides consulting, training, and installation services to help customers maximize their use of software products. Services are provided in time and material arrangements.

20. The historical financial statements of Target were analyzed to understand Target's past performance and operating trends. Target management provided audited financial statements for the fiscal years ended December 31, 2000 (fiscal 2000) and December 31, 2001 (fiscal 2001). The following is extracted from the historical financial statements:

- *Net sales:* For the twelve months ended December 31, 2001, net sales of Target were approximately \$25 million. This represents a 25 percent compound annual growth rate from fiscal 1999.
- *Operating expenses:* During the years ending 1999 through 2001, cost of sales averaged 15 percent of net sales. During that same period, sales and marketing expenses averaged 30 percent of net sales, general and administrative expenses averaged 22 percent of net sales, and R&D expenses averaged 12 percent of net sales.
- *Operating income:* During the years ending 1999 through 2001, operating income averaged 21 percent of net sales. During that same time period, operating income increased from about \$2 million to \$5 million.
- *Return on equity:* During the years ended 2000 and 2001, Target generated return on equity of 21 percent and 20 percent, respectively.
- *Shareholders' equity:* From December 31, 2000 to December 31, 2001, total shareholders' equity increased from \$25 million to \$30 million.
- *Current ratio:* Target's average current ratio during 2000 and 2001 was 3.2x, indicating that the Target had \$3.20 in current assets for every \$1.00 in current liabilities.
- *Leverage ratio:* For the year ended December 31, 2001, Target's debt level was nominal.
- Target's five-year historical information:

	Years Ended December 31				
	1997	1998	1999	2000	2001
Revenue	\$0	\$5,100	\$9,920	\$19,840	\$24,800
Operating expenses	5,000	7,000	7,936	15,475	19,592
EBITDA	(5,000)	(2,000)	1,984	4,365	5,208
Depreciation	200	200	300	400	500
Pre-tax income	(5,200)	(2,200)	1,684	3,965	4,708
Income taxes	0	0	0	0	1,351
Net income	<u>(\$5,200)</u>	<u>(\$2,200)</u>	<u>\$1,684</u>	<u>\$3,965</u>	<u>\$3,357</u>

EXHIBIT 5-2.5

Sample Valuation Report—Valuation Analysis and Valuation Approaches

DESCRIPTION OF ASSETS VALUED

Overview

21. The valuation of intangible assets of acquired technology-based companies is particularly important since the most valuable assets of this type of company generally are not recorded on the balance sheet before acquisition. Intangibles that may exist at the time of the acquisition include: (a) base (or core), developed, and in-process technologies; (b) customer-related intangibles (such as a distribution network or a customer base); (c) trademark(s), trade name(s), and related intellectual property; and (d) covenants not-to-compete.⁵ In the determination of the fair value for each intangible asset, each assessment should consider specific factors to the asset, including (but not limited to)—

- The value of economic or monetary benefit to market participants.
- The remaining economic life.
- The relative risk profile.

Summary of Intangible Assets Under Consideration

22. With respect to Target, all intangible assets that may have existed at the date of valuation were initially considered in the valuation analysis. Potential intangible assets were identified through an assessment of the economics of the transaction, a review of all supporting documents and materials, and discussions with Target management. (Step 4 in chapter 5 of the AICPA Practice Aid identifies many of the materials reviewed). As a result of our review, five intangible asset categories (which meet the criteria for separate recognition apart from goodwill; see paragraph 39 of FASB Statement No. 141) were identified for our analysis: (a) existing technology, (b) technologies under development, (c) noncompete agreements, (d) trademark and tradename, and (e) customer list. Please see the following description of intangible assets for all of Target's divisions and entities.

Technology Accounting Considerations

23. To determine whether a technology was complete or under development, FASB Statement No. 2 and FASB Interpretation No. 4 guidelines were reviewed.

⁵ This list is not all-inclusive; intangible assets listed above are for illustrative purposes only. The identification of intangible assets is specific to each transaction and depends on the facts and circumstances surrounding the acquisition. Also, see footnote 1.

24. Published in October 1974, FASB Statement No. 2 provides accounting guidelines for research and development (R&D) with the objective of reducing the number of reporting practices previously employed. The statement is broken into four specifications concerning R&D: activities identified, elements of cost, accounting for, and disclosure of.

25. FASB Statement No. 2 identifies R&D activities using the following definitions:

- *Research* is defined as a planned search or critical investigation aimed at discovery of new knowledge with the hope that such knowledge will be useful in developing a new product or service (hereinafter, “product”) or a new process or technique (hereinafter, “process”) or in bringing about a significant improvement to an existing product or process.
- *Development* is defined as the translation of research findings or other knowledge into a plan or design for a new product or process or for a significant improvement to an existing product or process, whether intended for sale or use. It includes the conceptual formulation, design, and testing of product alternatives, construction of prototype, and operation of pilot plants. It does not include routine or periodic alterations to existing products, production lines, manufacturing processes, and other ongoing operations, even though alterations may represent improvements, and it does not include market research or market testing activities.

26. Elements of R&D cost include personnel cost for those employed in R&D activities; materials, equipment, and facilities that have no alternative future use; and intangible assets purchased from others that have no alternative future use and, therefore, no separate economic values.

27. According to FASB Statement No. 2, accounting for R&D costs requires charging them to expense when incurred. Appropriate disclosure in financial statements is then required.

28. FASB Interpretation No. 4, issued in February 1975, addresses the accounting treatment for assets to be used in R&D activities acquired in a business combination. More specifically, FASB Interpretation No. 4 makes a distinction between those assets *resulting from* R&D activities of the acquired enterprise and those *to be used in* R&D activities of the combined enterprise. It indicates that, according to APB Opinion No. 16 (which is superseded by FASB Statement No. 141), the costs assigned to assets either resulting from or to be used in R&D projects are determined from the amount paid by the acquiring enterprise and not from the original cost to the acquired enterprise. It also confirms that, according to FASB Statement No. 2, the costs assigned to assets to be used in R&D projects that have no alternative future use are charged to expense.

29. In November of 1998, the AICPA convened a task force to identify best practices with regard to the accounting for, valuation of, and auditing of acquired in-process research and development (IPR&D). The AICPA published a Practice Aid titled *Assets Acquired in a Business Combination to Be Used in Research and Development Activities*.

30. The information in this report has been subjected to procedures consistent with the AICPA Practice Aid.

31. The technologies under development were reviewed as of the valuation date to determine their stages of completeness and the specific stages achieved; discussions also were held with Target and Acquiror management concerning the scheduled release dates of the products employing the technologies. After considering all of the guidance and facts outlined in this report, a decision was made about whether the technologies were complete or under development.

32. On the basis of discussions with Target and Acquiror management and a review of the appropriate accounting literature addressing the identification and valuation of intangible assets, as well as their classification as completed technology or technologies under development, the categories of Target technology as of the valuation date were identified as described in the following sections.

Existing Technologies

33. Product PT, a high-performance publishing tool, combines digital images and company data in powerful, simple-to-use applications, creating targeted material in seconds. Preformatted layouts make it easy to produce custom layouts, visual portfolios, and merchandised assortments. Web capabilities link everyone in the supply chain in one collaborative environment. Combination of the functionality of a database with a Web browser allows for instant worldwide access to the client's Product PT solution.

34. Product PT was developed in fiscal years 1998 and 1999, introduced in June 1999, and is expected to be sold through the remainder of 2002. The developed technology embodied within Product PT also will be present in Software A and D. The fair value of the developed technology, therefore, is represented by the excess earnings of Product PT and a portion of the projected operating income of Products A and D, expressed as a base (or core) technology charge to cash flows.

Technologies Under Development

35. *Software A*—When developed, Software A will incorporate two modules into the basic product. Design Module will add 100 new layouts and the ability to add thousands more. Slides Module will create freestanding CD-ROM or e-mail-based slide shows (runtimes) for customer distribution.

36. *Software B*—The Software B Suite program will be customized to create LAN and Web-based all-encompassing shop creation tools for the publishing industry. Graphics personnel will use these tools to maintain the image on the shop floor to maximize selling to consumers and save hundreds of thousands of dollars in shop development costs.

37. *Software C*—Software C Suite, a workgroup-centric planning and selling technology, will replace spreadsheets into a networkable, business-rule, scalable solution for merchandising, production, retail and wholesale planning, sales, and management. When developed, this tool is intended to increase sales by 10 percent, lower costs by 45 percent, and increase productivity by 145 percent.

38. *Software D*—Software D is a Web-based digital asset management and workflow management tool for content creation and photo studios. It will be designed for keeping track of hundreds of thousands of digital images and coordinating of the photography, editing, and information regarding their styling, editing, and use. Software D also will track shipments of goods to be digitized, where goods are loaded, who shoots them in what bay, and who edits them. When developed, this tool will report on planned versus actual productivity, manage the original and edited version, allow the customer to review images, and give Web-based styling and editing notes. In addition, the tool will allow for the creation of a copy to be included on e-commerce Web sites and interfaces with customers' legacy systems.

39. For each technology under development, we have analyzed the stage of completion to adjust the discount rate to include the risk associated with the completion effort. We obtained information about the accumulated costs incurred through the valuation date, the estimated cost to complete, and the total estimated development costs to compute the stage of completion based on costs incurred. We also have discussed with management the technical issues that were overcome before the valuation date, as well as those to be resolved. We concluded on a stage of completion, as shown in exhibit E.

Noncompete Agreements

40. The fair value of a noncompete agreement stems from the protection afforded to the acquirer from competition from key management. Such competition could significantly erode the value of the acquired assets. As of the valuation date, three-year noncompete agreements were entered into with three key personnel. *[For purposes of the sample valuation report, the fair value of this intangible is stated without related details because that determination is beyond the scope of this Practice Aid.]*

Trademark/Trade Name

41. Target's name is well known in the marketplace and Acquiror intends to continue using that name in the marketplace. End-user recognition and acceptance of a trademark/trade name may be a valuable asset that can be separated from other intangible assets. A trademark is a letter, word, symbol, or design, or any combination thereof, used by a company to identify its products and to distinguish them from those of its competitors. The history of continued use of its products is essential to the maintenance of trademark rights. A trade name, as defined herein, includes not only the legal trademark but also the presentation and image that this intangible asset infers. *[For purposes of the sample valuation report, the fair value of this intangible is stated without related details because that determination is beyond the scope of this Practice Aid.]*

Customer List

42. Target's customer accounts numbered approximately 100 at December 31, 2001. Customer accounts are very important assets of this business because of the propensity of the customers to generate revenue for Target beyond the initial sale is the underlying worth of the customer accounts. Acquiror will not have to duplicate historical marketing, training, and start-up expenses to develop a customer base to the same level. *[For purposes of the sample valuation report, the fair value of this intangible is stated without related details because that determination is beyond the scope of this Practice Aid.]*

VALUATION INTRODUCTION

43. The designated assets have been valued on the basis of their fair value, which has been defined in the introduction of this report.

44. Certain of the historical financial analyses of Target and a capsule description of the business operations and the assets valued are presented in this report. Expected operating results of Target were analyzed and current and estimated cash flows were discussed with members of Target and Acquiror management and were determined to be reasonable for use in the valuation.

45. Before arriving at the opinion of fair value of the intangible assets, the following, as well as other relevant factors, were considered:

- The extent, character, and utility of the intangible assets
- The income-generating or cost-savings attributes of the intangible assets
- The nature and timing of the functional or economic obsolescence of each intangible asset
- The relative risk and uncertainty associated with an investment in intangible assets

46. The acquired technologies under development were reviewed for alternative future use, other than those described herein, in accordance with the AICPA Practice Aid. The research and development process at Target is a focused effort to deliver new products with certain well-defined characteristics. It was concluded that the technologies under development have no alternative future use other than the objective of the current project.

47. The methods used in determining fair value of the intangible assets included consideration of the three traditional approaches to value: market, income, and cost.

48. The market approach considers prices recently paid for similar assets with adjustments made to the indicated market prices to reflect the condition and utility of the analyzed asset relative to market comparatives. As intangible assets typically are exchanged only in the context of the purchase of a business, this approach was not employed.

49. In an income approach, fair value is dependent on the present value of future economic benefits to be derived from ownership of an asset. Central to this approach is an analysis of the earnings potential represented by the asset and of the underlying risks associated with obtaining those earnings. Value indications are developed by discounting future net cash flows available for distribution to their present value at market-based rates of return. Based on the analysis performed, we have concluded that the future cash flows used result in a reasonably reliable estimate of fair value. Accordingly, the income approach has been employed to value the existing technology, the technologies under development, the noncompete agreements, and the trademark/trade name. The income approach was not selected to value the customer list since the amount of income directly attributable to this asset cannot be separately measured.

50. The cost approach, as applied in the valuation of intangible assets, establishes fair value based on the cost of reproducing or replacing the assets, less depreciation for functional or economic obsolescence. Valuation results derived using the cost approach can be viewed as an upper limit of value in cases where the asset is easily replaced or reproduced since no prudent investor would purchase an existing asset for more than it would cost to create a comparable asset. This approach has been employed to value the customer list.

EXHIBIT 5-2.6
Sample Valuation Report—Income Approach

VALUATION OF EXISTING TECHNOLOGY AND TECHNOLOGIES UNDER DEVELOPMENT

51. The fair values for the existing technology and technologies under development were estimated by discounting cash flows to be derived from the sales of these products to present value.

52. The discounted net cash flow method of the income approach explicitly recognizes that the current value of an asset is premised upon the expected receipt of future economic benefits such as cost savings, periodic income, or sales revenue. Indications of value are developed (under what many view as a traditional approach) by discounting future net cash flows to their present value at a rate that reflects both the current return requirements of the market and the risks inherent in the specific investment.

53. Management provided us with forecasts of (a) net sales for products employing the existing technology and (b) net sales of products expected to employ the technologies under development. The forecasts were reviewed for reasonableness, and are included in our valuation models. Management also provided us with forecasts of the operating expenses related to cost of sales, selling and marketing, and general and administrative for the products employing the existing technologies and for the products expected to employ the technologies under development. The forecasted operating expenses were compared to historical levels of operating expenses and the cost structure of comparable companies, and the forecast was determined to be reasonable.

54. Management also provided us with their estimate of the costs to complete the R&D for each technology under development. The estimated costs to complete were added to R&D expenses incurred prior to the valuation date, and were compared to data on costs incurred to develop similar products. The estimated costs to complete were determined to be reasonable, and are reflected in the valuation models as additional operating expenses.

EXISTING TECHNOLOGY

55. Existing technology consists of the current release of Product PT, which is expected to be sold for the remainder of the year 2002 and then replaced with Software A. Revenues are expected to be \$9 million for fiscal year 2002 based on an expected growth rate over 2001 revenues, adjusted downward for the expected release of Software A in late 2002. Expense expectations were based on historical experience combined with market participant data.

56. Existing technology also will be leveraged in the development of Softwares A and D. The contributions of existing technology are expected to last through 2006, indicating a remaining useful life of approximately five years. This fact has been accounted for through the imputation of a royalty (or contributory asset) charge to the forecasted operating income of the technologies under development.

57. To estimate an appropriate charge, the operating margin for these technologies was analyzed. In an article published in *The Encyclopedia of Patent Practice and Invention Management*, author Albert S. Davis, Jr., states the following:

Analysis of a great number of cases, both bargained-out and imposed as damages by the courts, makes it clear that a royalty rate of 25 to 33 1/3 per cent of the anticipated profit is about the average, with many exceptions outside this range.

58. Considering the profit margin expected and the amount of base (or core) technology being employed by the technologies under development, a royalty rate at the upper end of the observed range was deemed to be reasonable. Therefore, a royalty rate of 33 percent of operating profit was selected. This 33 percent was deducted from the individual cash flows of the technologies under development that leverage existing technology, tax-effected, and discounted to present value. This value has been added to the value of existing technology and represents the contribution of base (or core) technology inherent in the technologies under development. See exhibit C for specific valuation calculations for existing technology.

TECHNOLOGIES UNDER DEVELOPMENT

59. For all technologies under development, revenue expectations, derived from management's "base case" forecast, were based upon experience with prior releases, combined with expected industry growth as indicated in industry source document, number of other competitors, and estimated share of the market. In addition, expenses are expected to track historical experience because the sales, marketing, and management of the product is expected to be similar to past experience. The expectations of revenue and expenses are consistent with market participant data.

Software A

60. Software A is the next release of Product PT, scheduled for availability in late 2002. This release is a new technology platform that relies, in part, on the contribution of the existing technology. Revenues are expected to ramp up from \$4,000,000 in 2002, reaching a peak of \$40,000,000 in 2004, declining to \$20,000,000 in 2006 when future releases and/or competition are expected to supplant this release and the technology underlying it. Expense expectations were again based on historical experience combined with market participant data. This technology is 90 percent complete as of the valuation date, based on cost, time, and complexity factors. See exhibit D-1 for specific valuation calculations for Software A.

Software B

61. Software B represents a new technology designed to support Web-based publishing activities. As such, it represents a new source of income that does not rely on existing or core technology. Revenues are expected to grow from a base of \$1,500,000 in late 2002, when introduced, peaking at \$3,000,000 in 2004, and dropping to \$1,500,000 in 2005 when new products and technologies are expected to replace Software B. This technology is 70 percent complete as of the valuation date, based on cost, time, and complexity factors. See exhibit D-2 for specific valuation calculations for Software B.

Software C

62. Software C represents a new technology for sales management and productivity enhancement. As such, it also represents a new source of income that does not rely on core or existing technology. Revenues are expected to grow from a base of \$2,500,000 in 2003, to a peak of \$5,000,000 in 2005, dropping to \$2,500,000 in 2007, when new products and technologies are expected to replace Software C. This technology is 50 percent complete as of the valuation data, based on cost, time, and complexity factors. It is not expected to be released until late 2003, in contrast to Software A and B, which are expected to be released in late 2002 (due to their more advanced stage of completion). See exhibit D-3 for specific valuation calculations for Software C.

Software D

63. Software D is a Web-enabled asset management workflow module that is being designed to be an add-on to Product PT. As such, Software D relies on the contribution of the existing technology. Revenues are expected to grow from \$750,000 in 2003, to a peak of \$3,000,000 in 2005, dropping to \$1,500,000 in 2006. This technology, although having significant substance in terms of progress, is only 30 percent complete as of the valuation date based on cost, time, and complexity factors. This product is not expected to be released until late 2003. See exhibit D-4 for specific valuation calculations for Software D.

TAX RATES AND CONTRIBUTORY ASSET CHARGES

64. The expected operating profit forecasted for each intangible asset valued under the income approach was then tax-effected at the industry (or market participant) rate of 38 percent. The net income ascribable to the technologies under development was then reduced by a fair return on the required tangible assets and intangibles, including property, plant, and equipment; assembled workforce; trademark/trade name; customer list; and the required working capital. The chart in paragraph 5.3.64 of the AICPA Practice Aid was used as a basis for determining the contributory asset rate. A required return of 10.0 percent was calculated for working capital, a return on tangible assets was computed at 12.9 percent; a return of 19.0 percent was used as the required return on the workforce and other intangible assets.

DISCOUNT RATES

65. The discount rate used for the valuation of the completed technology was 19.0 percent. The discount rate determination considered that the existing technology is both complete and has been in the marketplace since 1999, and it also considered the calculated weighted average cost of capital (WACC) for companies deemed comparable to Target as of the valuation date. A rate of 16.5 percent was concluded in the WACC. *[For purposes of the sample valuation report, the WACC is stated without related details because that determination is beyond the scope of this Practice Aid.]* In approximating the purchase price in the BEV (refer to analysis in exhibit B) a 19.0 percent discount rate was indicated as being more reflective of the Target and its reliance on technologies under development to produce a majority of its future cash flows. Therefore, the 19.0 percent rate was used as the discount rate for current technologies. A premium was added to the WACC to reflect the risk associated with investing in technologies under development.

66. The incomplete technology represents a mix of near-term and mid-term prospects for the business and imparts a level of uncertainty to its prospects. It is the nature of the business to be constantly developing new technology for future product releases. Therefore, a reasonable expectation of return on the incomplete technology would be higher than the WACC.

67. To estimate what the relative risk/return should be for the incomplete technology, an analysis of the work effort already completed compared to what was needed to complete the project was undertaken. In general, the earlier in the development process, the higher the risk of successfully completing the project and realizing the expected revenue and profit. The closer a project is to completion, the lower the risk of completion and the associated future expectations. The following chart summarizes this relation and the resulting discount rate for each of the incomplete technology:

Product	Percent Complete	Premium to Existing Technology Discount Rate	Concluded Discount Rate
Product PT	100%		19%
Software A	90%	3%	22%
Software B	70%	12%	31%
Software C	50%	21%	40%
Software D	30%	31%	50%

TAX AMORTIZATION BENEFITS

68. One additional adjustment to the indicated values derived above using the income approach is required to reflect the hypothetical tax benefits associated with amortizing the asset for income tax purposes.

69. When a business combination is structured as a stock purchase for income tax purposes, there generally is not a corresponding change in the tax basis of assets acquired. That is, the tax basis of the intangible assets generally carries over from Target. Historically, valuation practice would dictate that no tax benefit should be included in the valuation of the intangible assets acquired because the buyer would not be able to amortize the intangible assets acquired for income tax reporting purposes, and thus would not benefit from the tax savings associated with amortization of the assets.

70. However, the value of tax amortization benefits associated with intangible assets, including IPR&D assets, should be recognized when the purpose of the valuation is to estimate fair value as that term is defined under U.S. generally accepted accounting practices, including for transactions where the buyer will not be allowed to gross up and amortize the value of purchased intangible assets for income tax purposes (that is, nontaxable business combinations rather than asset purchases). FASB Statement No. 109, *Accounting for Income Taxes*, prohibits the net-of-tax approach and requires assets acquired and liabilities assumed to be recorded at their “gross” fair value. In accordance with paragraph 5.3.102 of the AICPA Practice Aid, the fair value of the intangible assets includes the value of the tax benefit resulting from the amortization of those assets. The benefits of amortizing the values of the assets are shown in exhibit F and are added to the values previously determined.

CONCLUSION

71. Based on the investigation and analyses outlined above and on the valuation approaches, methods, and techniques employed, it is concluded that, as of January 21, 2002, the fair value of the designated intangible assets⁶ of Target is reasonably represented in the amount of \$18,493,600, distributed as follows:

Existing technology	6,398,100
Technologies under development	7,892,100
Non-compete agreements	1,849,200
Trademark/trade name	546,200
Customer list	<u>1,808,000</u>
Total	<u>\$18,493,600</u>

⁶ See footnote 1.

EXHIBIT A
Target
Valuation Summary
Valuation Date: January 21, 2002

	<u>Value</u>
<u>Existing technology:</u>	
Product PT	6,398,100
Total existing technology:	<u>6,398,100</u>
<u>Technologies under development:</u>	
Software A	6,968,700
Software B	621,400
Software C	0
Software D	302,000
Total technologies under development:	<u>7,892,100</u>
<u>Other assets</u>	
Noncompete agreements	1,849,200
Trade name	546,200
Customer list	1,808,000
Total other assets	<u>4,203,400</u>
Total all assets:	<u><u>18,493,600</u></u>

EXHIBIT B
Target
Business Enterprise Value (see paragraph 5.3.111)
Valuation Date: January 21, 2002

For Fiscal Years Ending,		(\$000's)					
		2002	2003	2004	2005	2006	Stabilized Period
Professional services		12,000	22,000	40,000	60,000	75,000	
Existing technology		9,000	0	0	0	0	
Technologies under development		9,500	35,500	54,000	39,500	22,500	
Future development		500	1,000	10,750	57,625	98,906	
Total revenue		31,000	58,500	104,750	157,125	196,406	206,226
Total expenses (services)		9,000	18,500	36,200	54,300	67,875	71,269
Total expenses (existing)		6,390	0	0	0	0	0
Total expenses (IPR&D)		9,151	24,788	40,500	29,625	16,875	0
Total expenses (future)		259	4,682	15,480	54,345	88,087	110,210
Total expenses		24,800	47,970	92,180	138,270	172,837	181,479
EBITDA		6,200	10,530	12,570	18,855	23,569	24,747
Depreciation expense		736	1,388	2,486	3,728	4,660	4,893
Net income		5,464	9,142	10,084	15,127	18,908	19,854
Estimated income taxes @	38%	2,076	3,474	3,832	5,748	7,185	7,544
Debt-free net income		3,388	5,668	6,252	9,379	11,723	12,309
Add: depreciation expense		736	1,388	2,486	3,728	4,660	4,893
Less: capital expenditures		1,700	1,700	1,700	1,700	1,700	4,893
Less: working capital requirements	10%	1,900	2,750	4,625	5,238	3,928	982
Net cash flow		524	2,606	2,413	6,169	10,755	11,327
Partial period adjustment		0.94	1.00	1.00	1.00	1.00	1.00
Adjusted net cash flow		491	2,606	2,413	6,169	10,755	
Discount period		0.46	1.42	2.42	3.42	4.42	
Discount rate WACC @	19%	0.9234	0.7816	0.6568	0.5519	0.4638	
Present value		453	2,037	1,585	3,405	4,988	
Present value of interim cash flows		12,468					
Terminal value calculations			Terminal Cash Flow		Terminal Value		Present Value @ 19%
Capitalized stabilized annual net cash flow @14%: WACC 19% less	5%		11,327		80,909		37,526

VALUATION SUMMARY

	PV of Interim Cash Flows	PV of Terminal Value	Indicated Value
Based on:			
Capitalized final year DFNCF at WACC less g (h)	12,468	37,526	49,994 *
		Indicated Value(rounded):	50,000

* The indicated value approximates the purchase price of \$50,000,000, and no additional reconciliation was performed

EXHIBIT C
Target
Existing Technology—Product PT
For Fiscal Years Ending

		2002	2003	2004	2005	2006
Revenue		9,000	0	0	0	0
Operating expenses		<u>6,390</u>	0	0	0	0
Operating income		2,610	0	0	0	0
Research & development		0	0	0	0	0
EBIT		2,610	0	0	0	0
Estimated income taxes @	38%	<u>992</u>	0	0	0	0
Net income		1,618	0	0	0	0
Contributory charges:						
Working capital @	10%	90	0	0	0	0
Trade name		45	0	0	0	0
Customer list		147	0	0	0	0
Workforce		76	0	0	0	0
Fixed assets		18	0	0	0	0
Net cash flow		1,242	0	0	0	0
Partial period adjustment		<u>0.94</u>	1.00	1.00	1.00	1.00
Adjusted net cash flow		1,164	0	0	0	0
Discount period		<u>0.46</u>	1.42	2.42	3.42	4.42
Discount rate WACC @	19%	0.9234	0.7816	0.6568	0.5519	0.4638
Present value		<u>1,075</u>	0	0	0	0
Present value of interim cash flows			1,075			
Value indication: product sales			1,075			
core technology charge - see below			<u>4,461</u>			
			5,536			
benefits of tax amortization - see exhibit F			<u>862</u>			
Total			<u><u>6,398</u></u>			

Contributory Charges - Core Technology						
		2002	2003	2004	2005	2006
Software A		766	3,062	3,630	2,228	1,403
Software D		0	158	248	495	248
Core technology royalty		<u>766</u>	<u>3,221</u>	<u>3,878</u>	<u>2,723</u>	<u>1,650</u>
Estimated income taxes @	38%	291	1,224	1,473	1,035	627
Net income		475	1,997	2,404	1,688	1,023
Partial period adjustment		<u>0.94</u>	1.00	1.00	1.00	1.00
Adjusted net income		445	1,997	2,404	1,688	1,023
Discount period		<u>0.46</u>	1.42	2.42	3.42	4.42
Discount rate @	24.6%	0.9041	0.7323	0.5877	0.4717	0.3786
Present value		<u>402</u>	<u>1,462</u>	<u>1,413</u>	<u>796</u>	<u>387</u>
Present value of interim cash flows			4,461			

EXHIBIT D-1
Target
Technology Under Development—Software A
For Fiscal Years Ending

		2002	2003	2004	2005	2006
Revenue		8,000	29,000	44,000	27,000	17,000
Operating expenses		<u>5,680</u>	<u>19,720</u>	<u>33,000</u>	<u>20,250</u>	<u>12,750</u>
Operating income		2,320	9,280	11,000	6,750	4,250
Cost to complete (R&D)		500	0	0	0	0
Contributory charge - core technology		<u>766</u>	<u>3,062</u>	<u>3,630</u>	<u>2,228</u>	<u>1,403</u>
EBIT		1,054	6,218	7,370	4,523	2,848
Estimated income taxes @	38%	401	2,363	2,801	1,719	1,082
Net income		654	3,855	4,569	2,804	1,765
Contributory charges:						
Working capital @	10%	80	291	442	271	171
Trade name		40	138	115	47	24
Customer list		131	453	378	155	78
Workforce		68	235	196	80	40
Fixed assets		16	55	46	19	9
Net cash flow		319	2,684	3,393	2,232	1,443
Partial period adjustment		0.94	1.00	1.00	1.00	1.00
Adjusted net cash flow		299	2,684	3,393	2,232	1,443
Discount period		0.46	1.42	2.42	3.42	4.42
Discount rate @	22%	0.9129	0.7545	0.6184	0.5069	0.4155
Present value		<u>273</u>	<u>2,025</u>	<u>2,098</u>	<u>1,131</u>	<u>600</u>
Present value of interim cash flows			6,127			
Benefits of tax amortization - see exhibit F			842			
Fair value			<u>6,969</u>			

EXHIBIT D-2
Target
Technology Under Development—Software B
For Fiscal Years Ending

		2002	2003	2004	2005	2006
Revenue		1,500	2,500	3,000	1,500	0
Operating expenses		<u>1,065</u>	<u>1,700</u>	<u>2,250</u>	<u>1,125</u>	<u>0</u>
Operating income		435	800	750	375	0
Cost to complete (R&D)		305	0	0	0	0
Contributory charge - core technology		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
EBIT		130	800	750	375	0
Estimated income taxes @	38%	49	304	285	143	0
Net income		81	496	465	233	0
Contributory charges:						
Working capital @	10%	15	25	30	15	0
Trade name		7	12	8	3	0
Customer list		25	39	26	9	0
Workforce		13	20	13	4	0
Fixed assets		3	5	3	1	0
Net cash flow		18	395	385	201	0
Partial period adjustment		0.94	1.00	1.00	1.00	1.00
Adjusted net cash flow		17	395	385	201	0
Discount period		0.46	1.42	2.42	3.42	4.42
Discount rate @	31%	0.8836	0.6821	0.5207	0.3975	0.3034
Present value		<u>15</u>	<u>269</u>	<u>200</u>	<u>80</u>	<u>0</u>
Present value of interim cash flows			564			
Benefits of tax amortization - see exhibit F			57			
Fair value			<u>621</u>			

EXHIBIT D-3
Target
Technology Under Development—Software C
For Fiscal Years Ending

		2002	2003	2004	2005	2006
Revenue		0	2,500	4,000	5,000	2,500
Operating expenses		<u>0</u>	<u>1,700</u>	<u>3,000</u>	<u>3,750</u>	<u>1,875</u>
Operating income		0	800	1,000	1,250	625
Cost to complete (R&D)		1,500	648	0	0	0
Contributory charge - core technology		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
EBIT		-1,500	152	1,000	1,250	625
Estimated income taxes @	38%	-570	58	380	475	238
Net income		-930	94	620	775	388
Contributory charges:						
Working capital @	10%	0	25	40	50	25
Trade name		0	12	10	9	3
Customer list		0	39	34	29	11
Workforce		0	20	18	15	6
Fixed assets		0	5	4	3	1
Net cash flow		-930	-7	513	669	340
Partial period adjustment		0.94	1.00	1.00	1.00	1.00
Adjusted net cash flow		-872	-7	513	669	340
Discount period		0.46	1.42	2.42	3.42	4.42
Discount rate @	40%	0.8571	0.6208	0.4435	0.3168	0.2263
Present value		<u>-747</u>	<u>-4</u>	<u>227</u>	<u>212</u>	<u>77</u>
Present value of interim cash flows			-174*			
Benefits of tax amortization - see exhibit F			0			
Fair value			<u>0</u>			

* The negative present value suggests a fair value of \$0.

EXHIBIT D-4
Target
Technology Under Development—Software D
For Fiscal Years Ending

		2002	2003	2004	2005	2006
Revenue		0	1,500	3,000	6,000	3,000
Operating expenses		<u>0</u>	<u>1,020</u>	<u>2,250</u>	<u>4,500</u>	<u>2,250</u>
Operating income		0	480	750	1,500	750
Cost to complete (R&D)		101	0	0	0	0
Contributory charge - core technology		<u>0</u>	<u>158</u>	<u>248</u>	<u>495</u>	<u>248</u>
EBIT		-101	322	503	1,005	503
Estimated income taxes @	38%	-38	122	191	382	191
Net income		-63	199	312	623	312
Contributory charges:						
Working capital @	10%	0	15	30	60	30
Trade name		0	7	8	10	4
Customer list		0	23	26	34	14
Workforce		0	12	13	18	7
Fixed assets		0	3	3	4	2
Net cash flow		-63	139	231	496	255
Partial period adjustment		<u>0.94</u>	<u>1.00</u>	<u>1.00</u>	<u>1.00</u>	<u>1.00</u>
Adjusted net cash flow		-59	139	231	496	255
Discount period		<u>0.46</u>	<u>1.42</u>	<u>2.42</u>	<u>3.42</u>	<u>4.42</u>
Discount rate @	50%	0.8304	0.5630	0.3754	0.2502	0.1668
Present value		<u>-49</u>	<u>78</u>	<u>87</u>	<u>124</u>	<u>43</u>
Present value of interim cash flows			283			
Benefits of tax amortization - see exhibit F			19			
Fair value			<u>302</u>			

EXHIBIT E
Target
Stage of Completion Analysis

		Product			
		Software A	Software B	Software C	Software D
Cost-based					
	Incurred to date	\$4,500	\$1,220	\$2,148	\$67
	To complete	500	305	2148	101
	Percent complete	90%	80%	50%	40%
Time-based (months)					
	Time from start to date	8	6	6	2
	To complete	2	4	6	8
	Percent complete	80%	60%	50%	20%
Complexity-based					
	Management estimate of tasks completed weighted by complexity	95%	70%	60%	30%
Conclusion		90%	70%	50%	30%

EXHIBIT F
Target
Tax Benefit Amortization Calculation
\$000s

Sample present value of tax benefits table

# of Months		Fraction	Years to	Annual		Product PT	PV of Tax
Period	Year	of Year	Midpoint	Amortization %	Tax Rate	19.00%	Benefits
						PV Factor	
1	2002	0.000	0.000	0.00%	38.00%	1.0000	0.0000
2	2003	1.000	0.500	6.67%	38.00%	0.9167	0.0232
3	2004	1.000	1.500	6.67%	38.00%	0.7703	0.0195
4	2005	1.000	2.500	6.67%	38.00%	0.6473	0.0164
5	2006	1.000	3.500	6.67%	38.00%	0.5440	0.0138
6	2007	1.000	4.500	6.67%	38.00%	0.4571	0.0116
7	2008	1.000	5.500	6.67%	38.00%	0.3841	0.0097
8	2009	1.000	6.500	6.67%	38.00%	0.3228	0.0082
9	2010	1.000	7.500	6.67%	38.00%	0.2713	0.0069
10	2011	1.000	8.500	6.67%	38.00%	0.2280	0.0058
11	2012	1.000	9.500	6.67%	38.00%	0.1916	0.0049
12	2013	1.000	10.500	6.67%	38.00%	0.1610	0.0041
13	2014	1.000	11.500	6.67%	38.00%	0.1353	0.0034
14	2015	1.000	12.500	6.67%	38.00%	0.1137	0.0029
15	2016	1.000	13.500	6.67%	38.00%	0.0955	0.0024
16	2017	1.000	14.500	6.67%	38.00%	0.0803	0.0020
Totals		15.000		100.00%			<u>0.1347</u>

Calculation

Assets:

	Indicated Value**	Discount Rate	PV of Tax Benefits	Tax Benefit*	Adjusted Value	Concluded Value
Product PT	5,535,968	19.0%	0.1347	862,119	6,398,087	6,398,100
Software A	6,127,169	22.0%	0.1208	841,559	6,968,729	6,968,700
Software B	564,302	31.0%	0.0919	57,129	621,431	621,400
Software C	0	40.0%	0.0745	0	0	0
Software D	283,252	50.0%	0.0620	18,713	301,965	302,000

* Sample calculation: $5,535,968 / (1 - 0.1347) = 6,398,087$; $6,398,087 - 5,535,968 = 862,119$ (rounded)

** From exhibits C and D-1 through D-4

CHAPTER 6

AUDITING ACQUIRED IPR&D ESTIMATES

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CHAPTER 6

AUDITING ACQUIRED IPR&D ESTIMATES

6.1 INTRODUCTION AND OVERVIEW

6.1.01 Business combinations often result in material amounts of the purchase price attributed to goodwill or other long-lived intangible assets. In many situations, valuation specialists are engaged to perform a valuation of the assets acquired, including assets acquired to be used in research and development (R&D) activities (which includes specific in-process R&D [IPR&D] projects, referred to in this chapter as acquired IPR&D), and issue a report that sets forth, among other things, the results of the valuation study. As with any material accounting estimate, the auditor designs audit procedures to test the reasonableness of the amount allocated to the acquired IPR&D.

6.1.02 Chapter 3 identifies best practices concerning the definition of assets acquired that are to be used in R&D activities and chapter 4 provides accounting and disclosure best practices. Chapters 2 and 5 set forth best practices for the valuation specialist to follow in performing a valuation to be used in connection with the allocation of the purchase price in conformity with generally accepted accounting principles (GAAP). The IPR&D Task Force believes that the auditor should review the best practices presented in those chapters.

6.1.03 Given the complexity of the valuation process and the myriad of estimates and judgments that must be made, the development of the estimated fair value of the acquired IPR&D often is performed by persons having special skills and training, that is, valuation specialists. While an acquiring company may have persons with the requisite skills in its employ, in many instances, it engages the services of an outside valuation specialist. The auditor's support for his or her conclusions about the reasonableness of the amount allocated to acquired IPR&D will be derived from the substantive audit procedures applied in evaluating the work of the valuation specialist. The guidance that follows is intended to assist the auditor in determining the nature, extent, and timing of the substantive audit procedures to be applied in the evaluation to reach a conclusion as to the reasonableness of the amount of the purchase price allocated to acquired IPR&D.

6.1.04 This Practice Aid focuses on the software, electronic devices, and pharmaceuticals industries; however, modification of the guidance may be necessary in response to the specific circumstances of each acquisition. The nature and extent of the modifications may be influenced by the business, legal, and regulatory environments in which both the acquiring company and the acquired company operate. Accordingly, auditors should use their knowledge of those environments and their professional judgment in applying the guidance of this Practice Aid to each acquisition.

6.2 RESPONSIBILITY FOR ACQUIRED IPR&D ESTIMATES

6.2.01 Overview

6.2.02 Accounting estimates are pervasive throughout financial statements. Generally accepted auditing standards (GAAS) in the United States define an accounting estimate as an approximation of a financial statement element, item, or account. Some accounting estimates, such as allowances for uncollectible accounts, pension accruals, or provisions for warranty claims, may be considered “routine” in the sense that those estimates are often derived from analysis of historical experience with past events and transactions over an extended period of time. The measurement of other accounting estimates may be subject to significantly more uncertainty because the estimates derive from expectations of future events that may or may not correspond to past experience with similar events and transactions. An estimate of the fair value of IPR&D acquired in a business combination is an example of an accounting estimate that is highly dependent on expectations of future events and transactions for which information based on historical experience may not be relevant to the evaluation of the assumptions underlying the estimated fair value of acquired IPR&D.

6.2.03 Statement on Auditing Standards (SAS) No. 57, *Auditing Accounting Estimates* (AICPA, *Professional Standards*, vol. 1, AU sec. 342), defines the respective responsibilities of management and the auditor with respect to accounting estimates and provides guidance to auditors in obtaining and evaluating sufficient competent evidential matter to support significant accounting estimates in an audit of financial statements.

6.2.04 Management’s Responsibility for Accounting Estimates

6.2.05 Management’s responsibility for accounting estimates included in the financial statements is described in SAS No. 57 (AU sec. 342.03) as follows:

Management is responsible for making the accounting estimates included in the financial statements. Estimates are based on subjective as well as objective factors and, as a result, judgment is required to estimate an amount Management’s judgment is normally based on its knowledge and experience about past and current events and its assumptions about conditions it expects to exist and courses of action it expects to take.

6.2.06 Management also is responsible for establishing processes for developing accounting estimates. Those processes, which may or may not be documented or formally applied, normally include the following steps noted in SAS No. 57 (AU sec. 342.05):

- Identifying the relevant factors that may affect the accounting estimate.
- Accumulating relevant, sufficient, and reliable data on which to base the estimate.
- Developing assumptions that represent management’s judgment of the most likely circumstances and events with respect to the relevant factors.
- Determining the amount of the estimate based on the assumptions and other relevant factors.
- Determining that the accounting estimate is presented in conformity with applicable accounting principles and that disclosure is adequate.

6.2.07 The risk of material misstatement of accounting estimates normally varies with the complexity and subjectivity associated with the process, the availability and reliability of relevant data, the number and significance of assumptions that are made, the degree of uncertainty associated with the assumptions, and the qualifications and expertise of the personnel developing the accounting estimate.

6.2.08 Developing an estimate of the fair value of acquired IPR&D in a business combination is a subjective and complex process. R&D projects in process should be identified and evaluated for their potential to result in marketable products. The stage of completion of each project should be estimated and expectations of costs to complete should be developed. Estimated future revenues and related costs associated with each project that is expected to result in a marketable product should be forecasted, and the assumptions and bases for them should be documented. Chapter 5 discusses the development of forecasts of cash flows.

6.2.09 Auditor’s Responsibility in Evaluating the Reasonableness of Accounting Estimates

6.2.10 SAS No. 57 (AU sec. 342.04) states that “the auditor is responsible for evaluating the reasonableness of accounting estimates made by management in the context of the financial statements taken as a whole.” The auditor’s objectives when evaluating accounting estimates, including the fair value of acquired IPR&D, are to obtain sufficient competent evidential matter to provide reasonable assurance that—

- All accounting estimates that could be material to the financial statements have been developed.
- Those accounting estimates are reasonable in the circumstances.
- The accounting estimates are presented in conformity with applicable accounting principles and are properly disclosed.

6.2.11 To accomplish those objectives with respect to the estimated fair value of acquired IPR&D, best practices indicate that the auditor should design and perform substantive auditing procedures to evaluate whether all of the following are true:

- All tangible and intangible assets acquired and all liabilities assumed have been identified and allocated an appropriate portion of the purchase price.
- The valuation methodology used to the estimate fair value of the acquired IPR&D is appropriate.
- The assumptions underlying the income approach used to develop the fair value of acquired IPR&D are not unreasonable in the circumstances.

6.2.12 An acquiring company may engage the services of a valuation specialist to estimate the fair value of certain assets acquired, including IPR&D, and the auditor may choose to use that specialist’s work as evidential matter in performing substantive tests of management’s estimate of the fair value of the acquired IPR&D. Alternatively, the auditor may engage a valuation specialist and consider the specialist’s work as an integral part of the auditor’s substantive testing. SAS No. 73, *Using the Work of a Specialist* (AICPA, *Professional Standards*, vol. 1, AU sec. 336), provides guidance to the auditor in both of those situations. Subsequent sections of this Practice Aid titled

“Engagement Planning Considerations” and “Performing Substantive Procedures” provide guidance concerning the auditor’s use of a valuation specialist in planning and performing the audit.

6.3 ENGAGEMENT PLANNING CONSIDERATIONS

6.3.01 Audit Risk Model

6.3.02 SAS No. 47, *Audit Risk and Materiality in Conducting an Audit* (AICPA, *Professional Standards*, vol. 1, AU sec. 312.12), states that “the auditor should consider audit risk and materiality both in (a) planning the audit and designing auditing procedures, and (b) evaluating whether the financial statements taken as a whole are presented fairly, in all material respects, in conformity with generally accepted accounting principles.” Audit risk is the risk that the auditor may unknowingly fail to modify appropriately his or her opinion on financial statements that are materially misstated. The auditor’s consideration of materiality is a matter of professional judgment and is influenced by his or her perception of the needs of a reasonable person who may rely on the financial statements in making an investment or credit decision.¹

6.3.03 The auditor should plan the audit so that audit risk will be reduced to a low level, that is, in his or her professional judgment, appropriate for expressing an opinion on the financial statements. The nature, timing, and extent of the procedures to be applied in an audit are a matter of the auditor’s professional judgment, based on his or her evaluation of the risk of material misstatement of the financial statements taken as a whole and the specific facts and circumstances. However, the procedures adopted should be adequate to achieve the auditor’s specific objectives and reduce detection risk to a level acceptable to the auditor. The evidential matter obtained should be sufficient for the auditor to form conclusions concerning the validity of the individual assertions embodied in the components of financial statements, and should provide a reasonable basis for the expression of an opinion.

6.3.04 An audit of financial statements is a cumulative process. The auditor may become aware of an acquisition involving acquired IPR&D while performing procedures relating to acceptance or continuance of a client or an engagement, during engagement planning, while obtaining an understanding of an entity’s internal controls, while performing reviews of interim financial statements, or while conducting fieldwork. Knowledge of such an acquisition may alter the auditor’s judgment about the levels of inherent and control risks and his or her preliminary judgment about materiality. In that situation, the auditor may wish to reevaluate the nature, timing, and extent of auditing procedures he or she plans to apply.

6.3.05 Knowledge of the Business

6.3.06 SAS No. 22, *Planning and Supervision* (AICPA, *Professional Standards*, vol. 1, AU 311.06), states:

¹ SEC Staff Accounting Bulletin No. 99, “Materiality,” presents a discussion of materiality considerations that are applicable to the financial statements of Securities and Exchange Commission registrants.

The auditor should obtain a level of knowledge of the entity's business that will enable him [or her] to plan and perform [the] audit in accordance with generally accepted auditing standards. That level of knowledge should enable [the auditor] to obtain an understanding of the events, transactions, and practices that, in [the auditor's] judgment, may have a significant effect on the financial statements. The level of knowledge customarily possessed by management relating to managing the entity's business is substantially greater than that which is obtained by the auditor in performing the audit. Knowledge of the entity's business helps the auditor in:

- a. Identifying areas for special consideration.
- b. Assessing conditions under which accounting data are produced, processed, reviewed, and accumulated within the organization.
- c. Evaluating the reasonableness of estimates, such as valuation of inventories, depreciation, allowances for doubtful accounts, and percentage of completion of long-term contracts.
- d. Evaluating the reasonableness of management representations.
- e. Making judgments about the appropriateness of the accounting principles applied and the adequacy of disclosures.

6.3.07 The auditor should obtain a knowledge of the business that includes, for example, the types of products and services sold by the business, and its production, marketing, distribution, and compensation methods. Auditors also should consider matters and trends affecting the industry in which the acquiring company operates, such as economic conditions, changes in technology, government regulations, and competitive conditions, to the extent they may have an effect on the financial statements being audited.

6.3.08 Knowledge of the acquiring company's business is ordinarily obtained through experience with the company or its industry, and inquiry of company personnel. Working papers from prior years may contain useful information about the nature of the business, organizational structure, operating characteristics, and transactions that may require special consideration. Other sources include industry publications and periodicals, research reports or offering memoranda of other entities in the industry, participation in industry conferences, trade associations, and other persons in the auditor's firm who may be knowledgeable about the industry.

6.3.09 In planning the audit, auditors may find procedures such as those described in paragraphs 6.3.10 through 6.3.34 of this Practice Aid useful in obtaining knowledge about an acquisition, including the acquiring company's procedures for allocating the purchase price among the tangible and intangible assets acquired and liabilities assumed.

6.3.10 Obtaining an Understanding of the Acquisition

6.3.11 Inquiry of management is an effective procedure for obtaining knowledge of events and transactions that require consideration in planning the audit. If a business combination has occurred or is contemplated before period end, the auditor should consider making inquiries of the chief executive officer, the chief financial officer, representatives of the client's marketing, business development, R&D or technology departments, and of other client personnel familiar with the acquisition. Such inquiries

should enable the auditor to gain an understanding of the nature of the acquisition and any special terms that may be associated therewith. Information obtained from discussions with management and acquiring company personnel may help the auditor identify matters that need to be corroborated with evidence obtained from other procedures, including confirmation from independent sources outside the company.

6.3.12 Reading and understanding the terms of acquisition agreements, due diligence reports, acquired company prospectuses or offering memoranda, analysts' reports, appraisals, board minutes and other related board materials, and preacquisition disclosures made by the acquired company will help the auditor obtain an understanding of the nature of the assets acquired (including IPR&D) and liabilities assumed, and the relative importance of the various components acquired.

6.3.13 Timing Considerations

6.3.14 If the acquisition has not been consummated at the commencement of audit planning and the auditor plans to use the work of a valuation specialist as evidential matter in performing substantive tests, the auditor should consider completing many of the procedures to be performed in connection with the use of the work of a valuation specialist during the audit planning process. For example, the auditor should consider performing the following procedures before the valuation study is completed to identify any issues or concerns the auditor may have with the competence or objectivity of the valuation specialist or with the valuation methodology or assumptions:

- Evaluate the qualifications of the valuation specialist.
- Evaluate any relationships that may exist between the valuation specialist and the client.
- Obtain an understanding of—
 - The types and sources of information to be provided by the company to the valuation specialist.
 - The methods and significant assumptions to be used by the valuation specialist.
 - The scope and nature of the conclusions expected to be included in the valuation specialist's report.
 - Whether the valuation specialist intends to follow the best practices discussed in the Practice Aid, and, if not, where the valuation specialist plans to deviate from the best practices.

6.3.15 If the transaction was consummated before audit planning, the auditor should consider performing the audit procedures related to the allocation of the purchase price, including the evaluation of the valuation specialists' work, early in the audit so that issues that arise may be resolved in a timely manner.

6.3.16 Personnel Considerations

6.3.17 Complex acquisitions, including those involving IPR&D, may require the assignment of more experienced auditors and more extensive supervision. GAAS requires that audit team members be assigned to tasks and supervised commensurate with their level of knowledge, skill, and ability so that they can evaluate the audit evidence they are examining. Also, the auditor responsible for the overall performance

of the audit should possess a level of knowledge of the acquiring company's business and its operating characteristics sufficient to understand the events, transactions, and practices that may have a significant effect on the financial statements being audited. However, management will possess a level of knowledge about the acquiring company's business substantially greater than that obtained by the auditor in performing an audit.

6.3.18 Best practices suggest that senior engagement team personnel should direct the planning of the substantive procedures applied in evaluating the reasonableness of the significant valuation assumptions. The extent of involvement by the engagement partner and manager generally depends on—

- The experience of the personnel who will be performing the substantive procedures.
- The complexity of the acquired and acquiring companies businesses.
- The significance of the acquisition and the amount of the IPR&D charge in relation to the financial statements taken as a whole.
- The auditor's assessment of the risk factors that relate to potential misstatements arising from fraudulent financial reporting (see paragraph 6.3.35).

6.3.19 The auditor should consider whether expertise is available within his or her firm to evaluate the valuation methodology. If the auditor concludes the requisite expertise is not available within his or her firm, best practices suggest that the auditor should engage the services of a valuation specialist to assist in that evaluation process.

6.3.20 Use of a Valuation Specialist

6.3.21 The sophistication of the acquiring company's management and the skills of its personnel have a direct bearing on the substantive procedures to be performed by the auditor and the amount of reliance the auditor may place on client-performed procedures. In the unusual situation in which the acquiring company is experienced in accounting for acquisitions and competent in applying valuation techniques (including those appropriate to acquired IPR&D) and has developed its own valuation methodology, the auditor may conclude that the acquiring company need not engage an independent valuation specialist. Companies that do not have in-house IPR&D valuation expertise often engage an independent valuation specialist.

6.3.22 Specialists typically are engaged in the following ways:

- Management engages or employs a valuation specialist and the auditor uses that specialist's work as evidential matter in performing substantive tests to evaluate the allocation of purchase price.
- The auditor engages a valuation specialist to assist the auditor in evaluating the valuation procedures and findings performed by, or at the request of, the acquiring company.

6.3.23 Regardless of the manner in which the valuation specialist is engaged, the auditor should follow the guidance provided in SAS No. 73 (AU secs. 336.08-.09) to—

- Evaluate the professional qualifications of the valuation specialist.
- Obtain an understanding of the work performed or to be performed, including the methods and assumptions to be used, the scope of the conclusions to be reached,

and the report to be issued; and the appropriateness of the valuation specialist's work for the auditor's purposes.

- Evaluate the relationship of the valuation specialist to the acquiring company.

6.3.24 *Qualifications of the Specialist*

6.3.25 SAS No. 73 (AU sec. 336.08) states that the auditor should consider the following when evaluating the professional qualifications of the specialist in determining that the valuation specialist possesses the necessary skill or knowledge:

- The professional certification, license, or other recognition of the competence of the specialist in his or her field.
- The reputation and standing of the specialist in the views of peers and others familiar with the specialist's capability or performance.
- The specialist's experience in the type of work under consideration.

6.3.26 Following are factors the auditor should consider in assessing the qualifications of the valuation specialist:

- Whether the specialist possesses an accreditation in valuation issued by a recognized body, such as the American Society of Appraisers, the Institute of Business Appraisers, or the AICPA.
- Whether the specialist is experienced in the valuation of tangible and intangible assets (including IPR&D) acquired in a business combination.
- Whether the specialist has valuation experience in the acquired company's industry or is otherwise knowledgeable of that industry.
- Whether the specialist is familiar with the best practices discussed in this Practice Aid.

6.3.27 If the auditor is uncertain whether the valuation specialist has the requisite qualifications, the auditor should consult with the appropriate acquiring company management to determine whether another specialist should be engaged who does possess the requisite skills and experience to perform the valuation. The auditor also may engage a qualified valuation specialist to review the work of the acquiring company's valuation specialist or otherwise assist the auditor in evaluating the qualifications of the acquiring company's valuation specialist.

6.3.28 *Relationship of the Specialist to the Acquiring Company*

6.3.29 The auditor should evaluate the relationship of the valuation specialist to the acquiring company and acquired company, paying particular attention to any situations in which the companies have the ability—through employment, ownership contractual rights, family relationships, or otherwise—to directly or indirectly control or significantly influence the valuation specialist's work.

6.3.30 There is no single, uniform set of conflict of interest standards applicable to valuation specialists; each credentialing body establishes the ethical standards applicable to its own members. For example, Uniform Standards of Professional Appraisal Practice (USPAP) requires that the valuation specialist disclose, in the

valuation report, the existence of any circumstances that might be deemed to present a conflict of interest. Nondisclosure of any such matter is a breach of USPAP standards. If the valuation specialist's report does not disclose any relationships with the acquiring company, the auditor ordinarily would not question such matters. If the auditor is uncertain about the possibility of a relationship between the acquiring company and the valuation specialist, the auditor should consider contacting the specialist and inquiring about any relationship between the acquiring company and the valuation specialist.

6.3.31 If a relationship between the acquiring company and the valuation specialist is disclosed or otherwise identified, the auditor should contact the valuation specialist and obtain a full understanding of the nature of the matter in order to assess its potential impact, if any, on the valuation study. For example, the valuation specialist may disclose that the valuation firm receives a \$5,000 per month retainer from the acquiring company to ensure the valuation firm's availability to provide services on short notice. If the valuation firm is a large, well-known firm, it is unlikely that such a retainer would unduly influence the work of the valuation firm. Such a retainer, if paid to a small or single member valuation firm, could lead to the auditor's further consideration of the relationship. If the auditor is uncertain about whether the existence of a relationship is significant, the auditor may wish to consult with another valuation specialist to evaluate the possible impact of the matter on the valuation study. Alternatively, the auditor could apply the guidance in paragraph 6.3.32.

6.3.32 If the auditor is unable to conclude that the relationship would not unduly influence the valuation study, the auditor should—

- Perform the substantive procedures described in paragraph 6.4 with a heightened degree of professional skepticism.
- Pay special attention to those elements of the valuation (for example, the assumptions) that are highly dependent on the valuation specialist's judgment. The evidence considered in support of the assumptions should be scrutinized for completeness and lack of bias.

If the auditor is unable to conclude that the valuation specialist's assumptions, methods or findings are not unreasonable, the auditor should engage another valuation specialist for that purpose.

6.3.33 *Understanding the Work of the Specialist*

6.3.34 The auditor should obtain an understanding of the nature of the work to be performed by the valuation specialist, including—

- The objective and scope of the specialist's work.
- The specialist's relationship to the acquiring company.
- The methods or assumptions used or to be used.
- The methods and significant assumptions as compared with those used in any previous valuations that included acquired IPR&D.
- The extent to which the best practices discussed in this Practice Aid are not followed.

- The valuation specialist's understanding that the valuation findings will be used by the auditor to evaluate the reasonableness of the related assertions in the financial statements.
- The valuation specialist's agreement that the valuation report will include sufficient detail to enable the auditor to perform that evaluation.

6.3.35 OVERALL RISK ASSESSMENT

6.3.36 SAS No. 47 (AU sec. 312.26) states:

The auditor needs to consider audit risk at the individual account-balance or class-of-transactions level because such consideration directly assists in determining the scope of the auditing procedures for the balance or class and related assertions.

Elements of audit risk assessment include inherent, control, and detection risk.

6.3.37 Inherent risk is the susceptibility of an assertion to a material misstatement, assuming that there are no related controls. The risk of such misstatement is greater for some assertions and related balances or classes than for others. For example, complex calculations are more likely to be misstated than simple calculations. Accounts consisting of amounts derived from accounting estimates pose greater risks than do accounts consisting of relatively routine, factual data. External factors also influence inherent risk. For example, technological developments might make a particular product obsolete, thereby causing amounts to be more susceptible to overstatement. The amount of acquired IPR&D included in the financial statements is based on accounting estimates involving complex calculations and depends on future developments.

6.3.38 The auditor also should consider the inherent risks typically associated with the acquired IPR&D estimate. Overstating acquired IPR&D understates goodwill, other intangible assets, and current period earnings. Understating acquired IPR&D overstates goodwill and earnings in the period of acquisition. Misstatements of the acquired IPR&D estimate of fair value may be intentional or unintentional. Intent is often difficult to determine, particularly in matters involving extremely subjective accounting estimates, such as the fair value of acquired IPR&D. Unreasonable accounting estimates may be unintentional or the result of an intentional attempt to misstate the financial statements. Although the auditor has no responsibility to determine intent, the auditor does have a responsibility to plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether caused by error or fraud.

6.3.39 SAS No. 55, *Consideration of Internal Control in a Financial Statement Audit* (AICPA, *Professional Standards*, vol. 1, AU sec. 319), as amended by SAS Nos. 78 and 94, requires that the auditor obtain a sufficient understanding of internal control to plan the audit. The auditor then should assess control risk, which is the process of evaluating the extent to which internal control may be relied upon in designing substantive tests to be performed. Some entities make many acquisitions during the course of a year and have developed substantial internal controls over accounting for the acquisitions and

the related purchase price allocations. These internal controls may ensure that management's objectives, including compliance with GAAP, are achieved in determining purchase price allocations. The auditor could evaluate those controls and assess control risk at less than maximum. However, in most situations, the auditor will not place significant reliance on controls and will perform substantive audit procedures to determine whether the acquired IPR&D estimate is reasonable.

6.3.40 The auditor should understand the environment in which the acquiring company operates to be able to assess the risk of a material misstatement. For example, pressure to meet future earnings expectations of analysts or other external parties may provide incentives for management to intentionally misstate the acquired IPR&D estimate. To address such risks, the auditor may want to be aware of analysts' earnings expectations and how they might influence the acquired IPR&D estimate. An understanding of the factors that could affect this estimate will benefit the auditor as he or she designs appropriate substantive audit procedures.

6.3.41 SAS No. 82, *Consideration of Fraud in a Financial Statement Audit* (AICPA, *Professional Standards*, vol. 1, AU 316.16) groups risk factors that relate to misstatements arising from fraudulent financial reporting into the following three categories:

- Management's characteristics and influence over the control environment
- Industry conditions
- Operating characteristics and financial stability

SAS No. 82 (AU sec. 316.17) also provides examples under each category that might be applicable to the acquired IPR&D estimate. The individual risk factors that should be considered may vary from entity to entity. However, the auditor should evaluate the examples and consider their effect on the nature and extent of the substantive procedures to be applied in the audit.

6.3.42 Risk factors relating to management's characteristics and influence over the control environment may include—

- A motivation for management to engage in fraudulent financial reporting. Specific indicators might include—
 - A significant portion of management's compensation represented by bonuses, stock options, or other incentives.
 - An excessive interest by management in maintaining or increasing the entity's stock price or earnings trend.
 - Pressures to achieve what may be aggressive or unrealistic forecasts.
- A failure by management to display and communicate an appropriate attitude regarding internal control and the financial reporting process. Specific indicators might include—
 - Domination of management by a single person or small group without effective oversight by the board of directors or audit committee.
 - Management setting unduly aggressive financial targets and expectations for operating personnel.

- Management displaying a significant disregard for regulatory authorities.
- Management continuing to employ an ineffective accounting, information technology, or internal auditing staff.
- Nonfinancial management’s excessive participation in, or preoccupation with, the selection of accounting principles or the determination of the acquired IPR&D estimate.
- Strained relationship between management and the current or predecessor auditor. Specific indicators might include—
 - Frequent disputes with the current or predecessor auditor on accounting, auditing, or reporting matters.
 - Unreasonable demands on the auditor including unreasonable time constraints regarding the completion of the audit or the issuance of the auditor’s reports.
 - Formal or informal restrictions on the auditor that inappropriately limit his or her access to people or information relevant to the evaluation of the acquired IPR&D estimate.
 - Domineering management behavior in dealing with the auditor, especially involving attempts to influence the scope of the auditor’s work concerning the determination of the acquired IPR&D estimate.

6.3.43 Risk factors relating to industry conditions may include—

- A high degree of competition (for example, the effect of not being “first to market” with the product).
- The presence of rapidly changing technology.
- High vulnerability to rapid product obsolescence (for example, the effect of next generation products on the estimated economic life of the products under development).

6.3.44 Risk factors relating to operating characteristics and financial stability may include—

- Inability to generate cash flows from operations while reporting earnings and earnings growth.
- Financial statement elements, such as acquired IPR&D charges, based on significant estimates that involve subjective judgments or uncertainties.
- Other significant, unusual, or complex transactions (especially those close to year end) that pose difficult “substance over form” questions.
- Aggressive sales or profitability incentive programs.

6.4 PERFORMING SUBSTANTIVE PROCEDURES

6.4.01 Overview

6.4.02 Acquired IPR&D may represent a significant portion of the purchase price in an acquisition, especially in technology-based industries. Therefore, the auditor should design substantive procedures that are appropriate in the circumstances and can be reasonably expected to detect a material misstatement of the estimated fair value of the acquired IPR&D in relation to the financial statements taken as a whole.

6.4.03 The significant financial statement assertions applicable to acquired IPR&D are valuation and allocation (acquired IPR&D is included in the financial statements at an amount that is reasonable in the circumstances), and presentation and disclosure (acquired IPR&D is properly classified, described, and disclosed). Accordingly, the auditor should design substantive audit procedures to obtain and evaluate evidential matter that will corroborate and support these assertions.

6.4.04 Preliminary Procedures

6.4.05 The auditor should obtain an understanding of the business purposes for the acquisition sufficient to enable the auditor to evaluate whether the accounting is consistent with the business purpose. For example, if the business purpose of the acquisition is primarily to obtain access to the acquired company's existing products and intellectual property, work force, and customer lists, one would not expect that a significant portion of the purchase price would be allocated to acquired IPR&D. The auditor ordinarily obtains this knowledge primarily from discussions with appropriate acquiring company personnel (including those of the acquired company) and analysis of due diligence or other acquisition studies performed by or for the acquiring company. Best practices indicate that in addition to discussions with the chief executive officer and chief financial officer, the auditor should consider discussing the business purpose of the acquisition with (a) marketing personnel familiar with the acquired company's products and markets, and (b) R&D, production, and business development personnel who are familiar with the products and product development plans related to the acquired technology.

6.4.06 The auditor's inquiries of the above parties should provide information about—

- Base (or core) technology.
- Historical and existing product lifecycles and changes in volumes and average selling prices over those lifecycles.
- Future products and dependency of future products on base (or core) technology.
- Management's technology development plans.
- Capabilities of personnel to conduct R&D.
- Markets served by the company and those it would like to serve.
- Competitive conditions.
- Regulatory requirements.
- Sensitivity to economic conditions.

6.4.07 This listing is not meant to be all-inclusive. It is designed to illustrate a process that the auditor undergoes and the knowledge that he or she needs of the acquired company's business to design effective substantive auditing procedures. The nature of the acquired IPR&D estimate is such that virtually every situation will be unique to the particular entity and industry to which it applies.

6.4.08 Generally, independent third party verification of management's expectations leading to the determination of the fair value of acquired IPR&D is not practicable. Best practices suggest that, under these conditions, auditors should exercise a heightened degree of professional skepticism and be alert to any information that may contradict management's stated expectations. Also, best practices indicate that the auditor should

obtain and review the following types of information that may either corroborate or contradict management's stated expectations:

- Internal budgets
- Technology development plans
- Materials presented to the board of directors in support of the acquisition
- Other corporate documents, including Web site content and press releases

Additionally, events occurring after the acquisition date may provide the auditor with evidence corroborating management's expectations at the time of the acquisition. Auditors should be skeptical when management's expectations change shortly after the acquisition date. Changes in management's expectations after the acquisition date should occur only as a direct result of events occurring subsequent to the acquisition date.

6.4.09 The information developed in performing the preliminary procedures set forth above should be used to tailor further substantive procedures and evaluate the reasonableness of the results.

6.4.10 Valuation Report

6.4.11 The appropriateness of the methods and the reasonableness of the assumptions used and their application are the responsibility of the valuation specialist. The valuation specialist prepares a valuation report that documents the results of the specialist's work, describes the methods and assumptions used in estimating the fair value of the items, and expresses conclusions as to the results of the work performed. The auditor should consider arranging to receive a copy of the draft or preliminary valuation report and study its contents to become informed of the significant assumptions and valuation techniques applied in the valuation of acquired IPR&D.

6.4.12 The auditor should consider whether the preliminary valuation is unreasonable considering the knowledge of the acquiring company's business and the business purpose of the acquisition. That consideration includes an assessment of whether the key assumptions appear reasonable based on the auditor's knowledge of the business and the IPR&D projects. If the auditor has not previously discussed the valuation methodology and assumptions with the valuation specialist, he or she should do so to clarify any questions or concerns the auditor may have.

6.4.13 The following provide guidance to the auditor in performing procedures to evaluate the reasonableness of the valuation results.

6.4.14 *The Valuation Methodology*

6.4.15 The valuation specialist uses specialized skills and industry experience to value acquired IPR&D. While the auditor cannot be expected to possess these skills, the auditor should perform procedures to determine that the methodology used by the specialist reconciles to the best practices discussed in this Practice Aid and includes consideration of the following matters.

6.4.16 Identification of All Intangibles

6.4.17 An appropriate valuation should identify all intangible assets acquired, including IPR&D (see paragraph 5.3.26). However, care should be taken to *exclude* from the IPR&D valuation amounts attributable to IPR&D projects that—

- Are not the results of R&D costs incurred by the acquired company (see paragraph 3.1.03).
- Do not have a fair value that is supported by the report (satisfactory to the auditor) of the valuation specialist (see paragraph 3.2.02).
- Are not controlled by the acquiring company or used for its economic benefits (see paragraph 3.2.03).
- Have yet to exhibit substance (see paragraph 3.2.04).
- Are complete (see paragraph 3.2.04).
- Have an alternative future use (see paragraph 3.2.06).
- Represent base (or core) technology or other contributory assets (see paragraph 5.3.54).
- Represent entity-specific synergies (see paragraph 5.3.17).

The auditor should consider, based on his or her knowledge of the acquiring company, the industry and the particular acquisition, whether other intangibles may exist that are not included in the valuation. Paragraph 5.3.60 references other types of intangible assets that may be present in a business combination.

6.4.18 The auditor can accomplish this objective by reviewing the allocation of the purchase price to the individual assets acquired. As discussed previously, generally the auditor does not have the skills to value the assets acquired, but the auditor can evaluate the completeness of the allocation based on his or her understanding of the business. If this knowledge indicates intangibles or other assets that may exist for which no allocation of fair value has been made, the auditor should discuss those matters with appropriate acquiring company personnel, including the valuation specialist, to ascertain that proper consideration of those other assets was made in the allocation of purchase price for the acquisition.

6.4.19 Projects in Progress

6.4.20 The valuation specialist generally will determine the value of developed product and base (or core) technology as well as technology under development. The auditor should consider whether only projects in process meeting the characteristics and attributes discussed in chapter III are included in the acquired IPR&D valuation. While this is an area of considerable judgment, the following will assist the auditor when evaluating in-process projects:

- Detailed description of each project
- Consideration of technological feasibility of the project
- Detailed project development chart (concept to completion)
- Overview of the status of the project as of the acquisition date
- Detailed project cost chart (concept to completion)
- The nature and complexity of the remaining development effort and schedule of the amount and timing of expenditures required to complete the project (that is, product-specific characteristics)
- Expected completion date/time to market

- Consideration of alternative uses of the project or any components thereof
- Economic justification for the project, including anticipated market, market share, and cash flow assumptions
- Competitors' activities/efforts
- Industry data.

6.4.21 This listing is not intended to be all-inclusive. Rather, it is intended to provide the auditor with guidance of matters to consider in evaluating whether all projects in process included in the valuation have continuing viability. This information should be obtained from appropriate acquiring company personnel and evaluated for reasonableness based on the auditor's knowledge of the business.

6.4.22 Significant Assumptions

6.4.23 SAS 73 (AU sec. 336.12) states:

The appropriateness and reasonableness of methods and assumptions used and their application are the responsibility of the specialist. The auditor should (a) obtain an understanding of the methods and assumptions used by the specialist, (b) make appropriate tests of data provided to the specialist, taking into account the auditor's assessment of control risk, and (c) evaluate whether the specialist's findings support the related assertions in the financial statements. Ordinarily, the auditor would use the work of the specialist unless the auditor's procedures lead him or her to believe the findings are unreasonable in the circumstances. ...

6.4.24 The auditor should evaluate whether the significant assumptions used by the valuation specialist are unreasonable based on the knowledge of the business and other information available.

6.4.25 Cash flow forecasts of IPR&D projects provided by management are among the most subjective of all estimates. The auditor should be satisfied that the estimates result in a valuation of acquired IPR&D that is not unreasonable. The extent of work that an auditor performs on such estimates is a matter of professional judgment regarding—

- Materiality of the acquired IPR&D.
- Complexity of the transaction.
- Conclusions about the thoroughness of the valuation and the qualifications of the valuation specialist.
- The asserted stage of completion of the project.
- The asserted state of the technology.
- The asserted assumptions used to arrive at an estimate of fair value (for example, discount rates and forecasted revenues and expenses).

6.4.26 The cash flow forecasts provided to or prepared by the valuation specialist should present (under the commonly used traditional approach) the best estimate of the future cash flows expected to be derived from each IPR&D project that is expected to be completed, using market participant assumptions (see paragraph 5.3.17) rather than entity-specific assumptions. The auditor should perform procedures to evaluate whether the significant assumptions are unreasonable. The auditor should determine the extent

of the procedures he or she will perform after evaluating the extent of the valuation specialist's work concerning the data supporting the significant assumptions. The auditor should consider the sources of information (both internal and external to the company) used by the valuation specialist in developing (or evaluating) the significant cash flow assumptions, such as expected costs to complete each IPR&D project in process, expected product sales volumes, prices and production costs, and expected product life cycles.

6.4.27 Matters to be considered when evaluating whether the significant cash flow assumptions are unreasonable include the following:

- Can information be obtained and informed judgments made about past and future events or circumstances in support of the underlying assumptions?
- Are any of the significant assumptions so subjective that no reasonable basis could exist to prepare a forecast of cash flows that results in a reasonably reliable measurement of fair value?
- Which entities comprise market participants?
- Would other persons knowledgeable in the acquiring company's business and industry select materially similar assumptions?
- Is the length of the forecast period appropriate given the historical product life cycles, potential for technological obsolescence, and expected market responses of customers and competitors?
- Is the market for the products expected to be produced from the technology mature or growing? Is it volatile or stable?
- Is the acquiring company well established in the market for the expected products or a newcomer?

6.4.28 Moreover, the auditor specifically should consider the significant cash flow assumptions that are particularly sensitive to risk of misstatement. Among the more significant assumptions are the following:

- Potential for introduction of new technologies that may lead to reduced selling prices or obsolete the acquired technology
- Likelihood of completion of product
- Estimates of stage of completion and time to completion
- Cost to complete
- Product life cycle and technology development strategies
- Expected sales volumes, product pricing, and expected revenues, and charges for base (or core) technology and other contributory assets
- Production and other costs, exclusive of the effects of buyer synergies
- Discount rates used to present value estimated cash flows
- Competitors' expected market responses

6.4.29 While the appropriateness and reasonableness of the assumptions used and their application are the responsibility of management and the valuation specialist, best practices suggest that the auditor perform procedures to determine whether the assumptions used and factors considered in developing the acquired IPR&D valuation are unreasonable. The nature and extent of the specific procedures to be performed by the auditor will be influenced by the extent of the procedures undertaken, and the conclusions reached, by the valuation specialist. The following procedures should be considered:

- Evaluate the support for the assumptions and conclusions of the valuation specialist, giving special attention to specific assumptions that are—
 - Material to the valuation
 - Especially sensitive to variations
 - Deviations from historical patterns
 - Especially uncertain
- For significant assumptions, if practicable, obtain the internal and external sources of information that were used in formulating the assumptions. The assumptions used should be market participant assumptions rather than those that are entity-specific (see paragraph 5.3.17). The following information may be useful to the auditor in evaluating the assumptions:
 - Knowledge of the business
 - Due diligence studies
 - Research reports of analysts
 - Product plans and budgets developed by the acquiring company
 - Market research studies
 - Historical experience with new product development activities of the acquiring company
 - Offering memoranda
 - Board of director materials prepared in support of the acquisition
 - Development progress subsequent to the acquisition
 - Forecasts provided to lenders
- On a test basis, consider whether that information supports the significant assumptions.
- If the information is taken from internal analyses, consider the need for testing the supporting information.
- Review the acquiring company's business plan (including product development plans, marketing plans and programs), budgets, and objectives, and consider their relationship to the significant assumptions.
- Consider the existence of external sources of information about the acquiring company and its product development activities, the industry and competitors' activities, analysts reports, and trade publications. If appropriate, consider confirming information supporting significant assumptions with the external sources.
- Inquire about and analyze any historical data used in developing the significant assumption to assess:
 - Whether the data are comparable and consistent for all periods, and
 - Whether the data are sufficiently relevant for the purpose
- If the support for significant assumptions comes from experts, such as lawyers, engineers, economists, and investment bankers:
 - Consider their professional standing and objectivity
 - Review the data and business plans the acquiring company submitted to the expert for consistency with the forecast assumptions and supporting data.

6.4.30 Internal Consistency

6.4.31 Upon completion of the procedures enumerated above, the auditor should assess the conclusions reached and the evaluation of the overall financial statement presentation. This generally would include considering the internal consistency of the results and assumptions with the acquiring company's business plans, forecasts, press releases, board presentations, and discussions with key personnel. When the results are not consistent with other information disseminated by the acquiring company, the auditor should request a reconciliation of such inconsistencies or appropriate revision of the valuation assumptions. If the acquiring company is unable to reconcile any inconsistencies or declines to modify the valuation assumptions, the auditor should consider the effect of this situation on his or her report on the financial statements (see paragraph 6.4.32).

6.4.32 Evaluating Results of Procedures Performed

6.4.33 In considering whether to rely on the findings of a valuation specialist about the fair value of the acquired IPR&D, the auditor should evaluate whether the valuation specialist's procedures and findings support management's assertion about the fair value of acquired IPR&D in the financial statements. Ordinarily, the auditor would accept the work of the valuation specialist unless other evidential matter developed in the course of the audit leads the auditor to believe that the valuation specialist's findings are unreasonable. In that event, or in the event there is a material difference between the valuation specialist's findings and management's assertion in the financial statements about the fair value of the acquired IPR&D item, the auditor should apply additional procedures designed to provide whatever additional information or corroborating evidential matter is needed to resolve the matters in question.

6.4.34 If, after applying additional appropriate audit procedures, the auditor is unable to resolve the matters, the auditor should obtain the opinion of another valuation specialist, unless it appears to the auditor that the matters cannot be resolved. The existence of a matter that cannot be resolved ordinarily will cause the auditor to conclude that the audit report should be qualified, because the inability to obtain sufficient competent evidential matter as to an assertion of material significance in the financial statements constitutes a scope limitation, and the guidance in paragraph 6.5.07 should be considered.

6.4.35 Preliminary Purchase Price Allocations

6.4.36 Situations may arise wherein an acquiring company consummates a business combination at or near the end of a reporting period, and the valuation specialist has been unable to complete a detailed valuation of the acquired IPR&D. Paragraph 4.1.02 provides an accounting question and answer for those situations and indicates that a tentative allocation of the purchase price should be made using the values that have been determined and preliminary estimates of the fair values that have not yet been finalized. The acquiring company may be able to make a good faith best estimate of the IPR&D allocation because it performs due diligence before or immediately after agreeing to the terms of the acquisition. Guidance also is provided when the acquiring company cannot

determine a best estimate for a preliminary allocation to acquired IPR&D, but it has a range of estimates, as may be the case in a hostile takeover situation.

6.4.37 In such situations, the auditor should ascertain that a valuation specialist has been engaged and expects to complete the valuation study within a reasonable period of time subsequent to the acquisition. The auditor also should ascertain that a preliminary estimate of the IPR&D charge has been recorded and perform appropriate procedures to evaluate the reasonableness of that preliminary estimate. In evaluating the reasonableness of the preliminary estimate, the auditor should perform essentially the same procedures as set forth in paragraphs 6.4.04 through 6.4.30. In addition, the auditor should discuss with the valuation specialist the preliminary estimate and data supporting the estimate to identify any concerns that the auditor or the valuation specialist may have with regard to the reasonableness of the estimate recorded.

6.4.38 If the auditor is unable to satisfy himself or herself about the reasonableness of the recorded allocation of the purchase price to the acquired IPR&D, the auditor (and the valuation specialist, if necessary) should meet with management and resolve the difference of opinion. It may be possible to accelerate the completion of the valuation study, delay the issuance of the financial statements, or both, until a better estimate can be developed. If the matter is not resolved to the satisfaction of the auditor, the guidance in paragraph 6.5.13 should be considered.

6.4.39 Management Representations

6.4.40 The auditor should obtain representations from management regarding its responsibility for the presentation of acquired IPR&D in the financial statements at the appropriate amount when the amounts are material in relation to the financial statements taken as a whole. An example of such representations follows:

In connection with the amounts recorded for the transaction to acquire Company X, we agree with the findings of the valuation specialist in calculating the fair value of acquired in-process research and development (IPR&D) and have adequately considered the qualifications of the specialist in determining whether to use the results of the specialist's valuation as the basis for the amount of the IPR&D charge. We believe the IPR&D assets identified as those to be used in R&D activities meet the definition of such assets (including that they have substance, are incomplete, and have no alternative future use) and their fair value is estimable with reasonable reliability. We expect to complete the development of all such assets, based on information that is available to us at the date of the final purchase price allocation. We believe the amount of the charge is appropriate and is consistent with generally accepted accounting principles, including the guidance in FASB Interpretation No. 4, and the related disclosures are appropriate. The historical financial data provided to the valuation specialist was prepared on a basis consistent with the company's audited financial statements. Forecasts and other estimates provided to the valuation specialist are consistent with those developed for other parties, internal use, or both. The forecasts of future cash flows used in the valuation represent our best estimate of future conditions consistent with the assumptions specified in the specialist's valuation using market participant

assumptions rather than those that are entity-specific. [*If using the traditional approach*] The discount rate applied to estimated future net cash flows appropriately reflects the nature and complexity of the remaining development effort and the amount and timing of estimated expenditures necessary to complete the development of the IPR&D projects. We did not give or cause any instructions to be given to the valuation specialist with respect to the values or amounts derived in an attempt to bias his or her work, and we are not otherwise aware of any matters that have had an adverse effect on the independence or objectivity of the specialist.

6.4.41 The auditor should consider whether other representations concerning the accounting for the acquisition should be obtained from management.

6.5 REPORTING CONSIDERATIONS

6.5.01 The purpose of this section is to identify best practices in addressing reporting matters relating to acquired IPR&D that could arise in the course of performing substantive audit procedures. Issues could result from concerns over the auditor's ability to rely on the work of the specialist or to obtain competent evidential matter in support of the financial statement assertion as to the IPR&D valuation, the estimation or presentation of the acquired IPR&D amounts in conformity with GAAP, and the auditor's association with IPR&D disclosures outside of the financial statements, such as in management's discussion and analysis (MD&A).

6.5.02 Reliance on the Work of the Specialist

6.5.03 If, upon the successful completion of the substantive procedures set forth in paragraph 6.4, the auditor determines that the specialist's findings support management's assertions about the valuation of the acquired IPR&D, the auditor usually would conclude that sufficient competent evidential matter has been obtained. Generally, the auditor should not refer to the work or findings of the specialist in the auditor's report on the financial statements. Reference to the specialist might be misunderstood to be a qualification of the auditor's opinion or a division of responsibility, neither of which is intended.

6.5.04 Circumstances may arise, as a result of the report or the findings of the specialist, wherein the auditor decides to add explanatory language to the auditor's standard report in the form of an emphasis paragraph, or when a departure from an unqualified opinion on the financial statements is required. Reference to and identification of the specialist may be made in the auditor's report if in the auditor's judgment the reference will facilitate an understanding of the reason for the explanatory paragraph or the departure from an unqualified opinion.

6.5.05 SAS No. 58, as amended, provides guidance with respect to the addition of an explanatory paragraph in the auditor's report to emphasize a matter regarding the financial statements. For example, an acquiring company may incur a significant IPR&D charge that could affect the comparability of the current period results of operations with those of the preceding period. In that situation, the auditor may wish to direct attention to the disclosures of the business combination and the IPR&D charge by means of an

emphasis paragraph in the auditor's report. Emphasis paragraphs are never required; they may be added solely at the auditor's discretion. A cursory review of current practice indicates that emphasis paragraphs are rarely, if ever, used in connection with a business combination.

6.5.06 If, as a result of performing audit procedures on the acquired IPR&D, the auditor concludes that a departure from an unqualified opinion is required, the form of the auditor's report will be governed by the nature of the circumstances giving rise to the need for the report modification. The requirements of the Securities and Exchange Commission (SEC) staff concerning qualified opinions on financial statements filed with the SEC are set forth in Staff Accounting Bulletin 13 (Topic 1E) and would be applicable to financial statements filed with the SEC.

6.5.07 Scope Limitations

6.5.08 The auditor is able to express an unqualified opinion on the financial statements only if the audit has been performed in accordance with GAAS, and if the auditor has been able to apply all the audit procedures considered necessary in the circumstances. Restrictions on the scope of the audit, whether imposed by the acquiring company or by circumstances, such as the timing of the audit work, the inability to obtain competent evidential matter, or an inadequacy of the accounting records, may require the auditor to modify the report on the financial statements.

6.5.09 The auditor's decision to express a qualified opinion or to disclaim an opinion because of a scope limitation depends on the auditor's assessment of the importance of the omitted audit procedures in relation to the auditor's ability to form an opinion on the financial statements taken as a whole. That assessment will be affected by the nature and magnitude of the potential effect of a misstatement of acquired IPR&D and its significance to the financial statements being audited.

6.5.10 When the auditor is unable to resolve disagreements regarding the reasonableness of the work of the valuation specialist (see paragraph 6.4.32), the auditor ordinarily will conclude that the audit report should be qualified because the inability to obtain sufficient competent evidential matter as to an assertion of material significance in the financial statements constitutes a scope limitation. SAS No. 58 (AU sec. 508.22–.32) provide additional guidance to the auditor with respect to scope limitations (as distinguished from uncertainties) and their effect on the auditor's report.

6.5.11 The procedures described above should be applied in situations in which the limitation on the scope of the audit is imposed by circumstances beyond the control of the acquiring company or the auditor, such as a lack of historical or other information to enable the auditor to evaluate the reasonableness of the significant assumptions used by the valuation specialist to estimate the fair value of the acquired IPR&D. In the rare situation in which a restriction that significantly limits the scope of the audit is imposed by the acquiring company, the auditor ordinarily should disclaim an opinion on the financial statements.

6.5.12 Situations may arise where an acquiring company that lacks the sophistication to perform its own valuation (see paragraph 6.3.21), refuses to engage a valuation specialist and makes their own estimate of the fair value of the acquired IPR&D. In those

circumstances, the auditor should consider insisting that the acquiring company engage a qualified independent valuation specialist. The acquiring company may suggest that the auditor perform the valuation and propose adjustments to the recorded estimate. For public registrants, the SEC staff believes that an auditor's independence would be impaired by performing such services for an audit client since he or she would be in the position of auditing their own work. The client's refusal to engage a qualified independent valuation specialist may result in a lack of competent evidential matter in support of the amount assigned to acquired IPR&D. In that situation, the lack of such evidential matter would constitute a scope limitation, as discussed in paragraph 6.5.11.

6.5.13 GAAP Departures

6.5.14 After performing the requisite audit procedures, including evaluating the findings of the valuation specialist, the auditor may conclude that management's assertions in the financial statements about the identification of or estimate of the fair value of the acquired IPR&D are not presented or measured in conformity with GAAP. This situation could arise from unresolved differences of opinion over whether all intangibles (for example, base [or core] technology) have been properly identified and valued, the appropriateness of the valuation methodology, or the reasonableness of the significant valuation assumptions (for example, the discount rate applied to compute the present value of estimated future net cash flows). When financial statements are materially affected by a departure from GAAP and the auditor has performed an audit in accordance with GAAS, the auditor should issue a qualified or adverse opinion on the financial statements. In deciding whether the effects of a GAAP departure are sufficiently material to require either a qualified or adverse opinion, the auditor should consider not only the dollar magnitude of the departure but should also consider the *qualitative* implications of the matter.²

6.5.15 Auditor's Responsibility for Information in Documents Containing Audited Financial Statements

6.5.16 The auditor's responsibility for information published in certain documents containing audited financial statements is described in SAS No. 8, *Other Information in Documents Containing Audited Financial Statements* (AICPA, *Professional Standards*, vol. 1, AU sec. 550.04) as follows:

Other information in a document may be relevant to an audit performed by an independent auditor or to the continuing propriety of his report. The auditor's responsibility with respect to information in a document does not extend beyond the financial information identified in his report, and the auditor has no obligation to perform any procedures to corroborate other information contained in a document. However, he should read the other information and consider whether such information, or the manner of its presentation, is materially inconsistent with information, or the manner of its presentation, appearing in the financial statements. [Footnote omitted.]

² SEC Staff Accounting Bulletin No. 99, "Materiality," presents a discussion of materiality considerations that are applicable to the financial statements of Securities and Exchange Commission registrants.

6.5.17 Accordingly, the auditor should read the acquired IPR&D disclosures in the MD&A presented in annual reports to shareholders and other documents to consider whether the disclosures are consistent with the auditor's knowledge of the client and the audited financial statements.

6.5.18 While the auditor does not have an obligation to corroborate acquired IPR&D information presented outside the financial statements, if such information is materially inconsistent with the audited financial statements, the auditor should discuss these matters with appropriate acquiring company personnel. If the inconsistencies are not corrected to the auditor's satisfaction, the auditor should follow the guidance set forth in SAS No. 8 (AU secs. 550.05-.06).

6.6 OTHER CONSIDERATIONS—INTERIM PERIOD REPORTING

6.6.01 An auditor may become aware of an acquisition involving IPR&D while performing a review of interim period financial information in accordance with SAS No. 71, *Interim Financial Information* (AICPA, *Professional Standards*, vol. 1, AU sec. 722) as amended by SAS No. 90. That guidance notes that the objective of a review of interim financial information is to provide a basis for reporting whether the auditor is aware of any material modifications that should be made for the information to conform with GAAP. Procedures applied in performing a review of interim financial information generally are limited to inquiries and analytical procedures concerning significant accounting matters relating to the interim financial information. Those procedures do not contemplate (a) tests of accounting records through inspection, observation, or confirmation; (b) obtaining corroborating evidential matter in response to inquiries; or (c) the application of certain other procedures ordinarily performed during an audit.

6.6.02 When a business combination has been reported in interim period financial statements that are the subject of a SAS No. 71 review, the auditor ordinarily would make inquiries of management and perform analytical procedures designed to ascertain whether the business combination as a whole appears to have been accounted for in conformity with GAAP. When making inquiries and performing analytical procedures with respect to a material IPR&D charge, the auditor should consider performing the following procedures:

- Inquire of the CEO and CFO about the business purpose for the acquisition, the principal products, processes, and types of assets acquired, and whether a valuation specialist was engaged to value the acquired IPR&D and has rendered a valuation report.
- Determine whether the amount allocated to acquired IPR&D is preliminary and subject to completion of a valuation study. If so, ascertain that its preliminary nature is properly disclosed in the financial statements.
- If a valuation report has been rendered, the report should be read and the assumptions and findings considered for consistency with the amounts reported in the financial statements and for reasonableness, based on the auditor's knowledge of the acquiring company's business and the industry, and for conformity with the best practices set forth in this Practice Aid. The auditor also should consider whether a discussion of the valuation assumptions and methodology with the valuation specialist would be helpful in enhancing the auditor's understanding of the estimation of the IPR&D charge.

6.6.03 The auditor should consider obtaining, in the representation letter, a specific representation concerning the valuation of and accounting for the acquired IPR&D similar to that presented in paragraph 6.4.32, tailored as appropriate for the specific circumstances.

6.6.04 If, based on performing the procedures set forth above, the auditor has reason to believe the acquiring company's estimation or presentation of the acquired IPR&D may not be in conformity with GAAP, the auditor should discuss his or her concerns with the acquiring company's senior management and perform additional procedures, such as those noted in paragraph 6.4, as may be necessary to determine whether a material misapplication of GAAP or appropriate valuation practices may have occurred. If the additional procedures confirms a material error in the determination or recording of the IPR&D charge, and the interim period financial information has not been issued or filed with the SEC on Form 10-Q in the case of a public company, the interim period financial information should be corrected before issuance or filing of Form 10-Q. If Form 10-Q already has been filed, management should be advised to discuss with its legal counsel the need to disclose publicly, such as in a Form 8-K Current Report, that the previously issued interim period financial information requires restatement and to prepare appropriate public filings to correct that interim information.

6.6.05 If, in the auditor's judgment, management does not respond appropriately to the auditor's concerns within a reasonable period of time, the auditor should inform the audit committee (or board of directors in the absence of an audit committee) of the matter as soon as practicable. If, in the auditor's judgment, the audit committee (or board of directors) does not respond appropriately to that communication, the auditor should evaluate whether (a) to resign the review engagement, (b) to resign or decline to stand for reelection as the acquiring company's auditors, and (c) the actions of the acquiring company and its audit committee trigger the auditor's reporting obligations (with respect to public entities) under Section 10A of the Securities Exchange Act of 1934. The auditor may wish to consult with his or her legal counsel when making these evaluations.

6.6.06 If a business combination has not been consummated at the date of the review of the interim financial information, the auditor should obtain from the acquiring company's senior management an understanding of the nature and purpose of the transaction and review the acquiring company's plan for completing the acquisition. The auditor may wish to consider the matters discussed in paragraph 6.3, including the need to engage the services of a competent independent valuation specialist. The auditor also should consider discussing with management the extent of the disclosures that should be made concerning the acquisition, such as disclosure in the MD&A by a company subject to the reporting requirements of the SEC.

EXHIBIT 6-1

Sample Audit Program — In-Process Research and Development

GENERAL

A portion of the purchase price in a business combination may be allocated to in-process research and development (IPR&D), but IPR&D is particularly common in acquisitions of software, electronic devices, and pharmaceutical companies. This sample audit program outlines audit procedures that should be considered when an acquiring company has consummated a business combination that may involve IPR&D. This sample audit program is best read and used in conjunction with best practices identified in chapter 6.

The procedures focus on the software, electronic devices, and pharmaceutical industries; however, further tailoring of the recommended procedures may be necessary in response to the specific circumstances of each acquisition. The nature and extent of the needed tailoring may be influenced by the business, legal, and regulatory environments in which both the acquiring company and the acquired company operate. Accordingly, auditors should use their knowledge of those environments and their professional judgment in tailoring the recommended procedures to each acquisition.

The services of a valuation specialist usually are required in estimating the amount of the purchase price allocated to IPR&D. Some entities employ valuation specialists in their organizations; others will find it necessary to engage the services of an external valuation specialist. Regardless of who performs the valuation, the auditor should determine that the specialist has the requisite skills and expertise to develop a valuation of the acquired IPR&D in conformity with generally accepted accounting principles (GAAP). In gathering audit evidence about the appropriateness of the IPR&D valuation, the auditor also may require the assistance of a valuation specialist. That specialist may be an employee of the auditor's firm or may be an external valuation specialist engaged by the auditor to assist in evaluating the reasonableness of the IPR&D valuation.

PROCEDURES

1. Obtain an understanding of the acquisition.
 - a. Inquire of appropriate acquiring company personnel about the nature and business purpose of the acquisition and whether special terms or conditions may exist.

[Persons of whom inquiry might be made include the chief executive officer, the chief financial officer, and appropriate personnel from marketing, business development, research and development, and technology departments. The auditor should become familiar with the types of products and services sold by the acquired company, and its production, marketing, distribution, and compensation methods. The auditor also should become aware of significant matters and trends affecting the industry, including economic conditions, changes in technology, government regulations, and competition.]

- b. Obtain and read the acquisition agreements, due diligence reports prepared by acquiring company personnel or other parties engaged by the acquiring company, analyst's reports, acquired company prospectuses or offering memoranda, and other industry analyses pertinent to the acquisition.
 - c. Obtain and read presentations to the board of directors and any press releases concerning the acquisition.
2. Ascertain the identity and affiliation of the valuation specialist. Arrange to meet with the valuation specialist and discuss the following:
- a. The objectives and scope of the valuation study.
 - b. Whether the valuation specialist has any relationships with the acquiring company that might impair the valuation specialist's objectivity.
 - c. The valuation specialist's understanding of the requirements of GAAP as they relate to the valuation, including the definition of fair value.
 - d. The types and sources of information to be provided by the acquiring company to the valuation specialist.
 - e. The methods and significant assumptions used in the valuation, including the selection of discount rates.
 - f. The consistency of methods and assumptions with previous valuations.
 - g. The scope and nature of the conclusions included in the valuation report.
3. Ascertain the following:
- a. The professional competence of the valuation specialist as evidenced by accreditation or certification, licensure or recognition by a recognized professional organization.
 - b. The professional reputation of the valuation specialist as viewed by his or her peers and others familiar with his or her capabilities or performance.
 - c. The experience of the valuation specialist in the industry or in the valuation of tangible and intangible assets, including acquired IPR&D.
4. Inquire of acquiring company personnel regarding any relationship between the valuation specialist and the acquiring company.

[The auditor should evaluate any relationship between the valuation specialist and the client to ascertain whether the client has the ability—through employment, ownership, contractual rights, family relationship or otherwise—to directly or indirectly control or significantly influence the valuation specialist's work. The valuation report should identify such relationships.]

5. With respect to the valuation report—
- a. Determine whether the valuation methodology used reconciles to the AICPA Practice Aid, Assets Acquired in a Business Combination to be Used in Research and Development Activities.
 - b. Review the reconciliation of the valuation to the purchase price paid.

[This information is normally found in the "Valuation Analysis" section of the valuation report.]

- c. Consider whether other intangibles exist to which a portion of the purchase has not been allocated.

[The report should identify and value all intangibles acquired (when several specialists are used to value intangibles, there may be more than one report, but the intangibles should be valued).]

6. If the income approach to valuation is used, review the cash flow forecasts and consider whether the significant assumptions applied to the projects in process are unreasonable.

[Among the more significant assumptions are the following:

- Potential for introduction of new technologies that may obsolete the acquired technology
- Likelihood of project completion
- Estimates of stage of completion and time to completion
- Cost to complete
- Product life cycle and technology development strategies
- Expected sales volumes, product pricing, and expected revenues (exclusive of amounts attributable to contributory assets and core technology)
- Production and other costs (exclusive of the effects of buyer synergies)
- Discount rates
- Competitors' expected prices]

7. Test the data furnished to the valuation specialist as follows:
 - a. Assess the relative importance of IPR&D to the acquisition by considering the materials reviewed during the planning procedures as well as other materials, such as presentations to the board, white papers, and due diligence working papers.
 - b. Test the mathematical accuracy of the forecasts furnished to the specialist.
 - c. Determine whether cash flow estimates were developed using "market participant" assumptions. With respect to "market participant" assumptions, paragraph 1.1.16 of the AICPA Practice Aid states:

For purposes of assigning cost to the assets acquired in accordance with FASB Statement No. 141, the amount of the purchase price allocated to an acquired intangible asset would not include any entity-specific synergistic value. Fair value does not include strategic or synergistic value resulting from expectations about future events that are specific to a particular buyer because the value associated with those components are unique to the buyer and seller and would not constitute market-based assumptions. As such, entity-specific value associated with strategic or synergistic components would be included in goodwill. Fair value would incorporate expectations about future events that affect market participants. If the acquiring company concludes that the discounted cash flow method best approximates the fair value of an acquired intangible asset, the discounted cash flows would incorporate assumptions that market participants would use in their estimates of future revenues and future expenses.

CONCLUSION

Based on the procedures performed, we are satisfied that our working papers appropriately document that acquired IPR&D does not contain any material misstatements, in relation to the financial statements taken as a whole. Exceptions are attached or stated below.

APPENDIX A

GLOSSARY OF TERMS

Base technology. (Also referred to in practice as core technology.) Those technical processes, intellectual property, and the institutional understanding that exist within an organization with respect to products or processes that have been completed and that will aid in the development of future products, services, or processes that will be designed in a manner to incorporate similar technologies.

Developed product technology. Technology as it exists in a current product(s) offering. Today's developed product technology may be tomorrow's base (or core) technology. In a valuation model that "splits" revenues or profits, developed product technology and base (or core) technology may be combined into one category. From a generally accepted accounting principles perspective, base (or core) and developed technology should be separately identified if they have different amortizable useful lives.

Expected cash flow approach. When determining present value, the sum of probability-weighted cash flows in a range of possible estimated amounts; the estimated mean or average.

In-process research and development (IPR&D). Research and development project that has not yet been completed. Acquired IPR&D is a subset of an intangible asset to be used in R&D activities.

Multi-period excess earnings method. A specific application of the discounted cash flow method, which is more broadly a form of the income approach. The most common method used to estimate the fair value of an intangible asset.

Synergies. In the context of developing prospective financial information, the difference between the assumptions used to estimate cash flows that are unique to an entity and the assumptions that would be used by market participants.

Traditional approach. When determining present value, the use of a single set of estimated cash flows.

APPENDIX B

GLOSSARY OF ABBREVIATIONS

AICPA. American Institute of Certified Public Accountants

FASB. Financial Accounting Standards Board

FDA. Food and Drug Administration

GAAP. Generally accepted accounting principles

GAAS. Generally accepted auditing standards

IPR&D. In-process research and development

MD&A. Management discussion and analysis

PFI. Prospective financial information

R&D. Research and development

SAS. Statement on Auditing Standards

APPENDIX C

REFERENCES

Following are titles of authoritative financial reporting literature referenced in this Practice Aid.

STATEMENTS OF FINANCIAL ACCOUNTING STANDARDS

- FASB Statement No. 2, *Accounting for Research and Development Costs*
- FASB Statement No. 7, *Accounting and Reporting by Development Stage Enterprises*
- FASB Statement No. 38, *Accounting for Preacquisition Contingencies of Purchased Enterprises*
- FASB Statement No. 68, *Research and Development Arrangements*
- FASB Statement No. 86, *Accounting for the Costs of Computer Software to Be Sold, Leased, or Otherwise Marketed*
- FASB Statement No. 96, *Accounting for Income Taxes*, which was superseded by FASB Statement No. 109.
- FASB Statement No. 109, *Accounting for Income Taxes*
- FASB Statement No. 121, *Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of*
- FASB Statement No. 131, *Disclosures about Segments of an Enterprise and Related Information*
- FASB Statement No. 133, *Accounting for Derivative Instruments and Hedging Activities*
- FASB Statement No. 141, *Business Combinations*
- FASB Statement No. 142, *Goodwill and Other Intangible Assets*

ACCOUNTING PRINCIPLES BOARD OPINIONS

- APB Opinion 16, *Business Combinations*
- APB Opinion 17, *Intangible Assets*
- APB Opinion 18, *The Equity Method of Accounting for Investments in Common Stock*

FASB STATEMENTS OF CONCEPTS

- FASB Concepts Statement No. 2, *Qualitative Characteristics of Accounting Information*
- FASB Concepts Statement No. 5, *Recognition and Measurement in Financial Statements of Business Enterprises*
- FASB Concepts Statement No. 6, *Elements of Financial Statements*
- FASB Concepts Statement No. 7, *Using Cash Flow Information and Present Value in Accounting Measurements*

FASB INTERPRETATIONS

- FASB Interpretation No. 4, *Applicability of FASB Statement No. 2 to Business Combinations Accounted for by the Purchase Method*

- FASB Interpretation No. 6, *Applicability of FASB Statement No. 2 to Computer Software*
- FASB Interpretation No. 35, *Criteria for Applying the Equity Method of Accounting for Investments in Common Stock*

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- SOP 81-1, *Accounting for Performance of Construction-Type and Certain Production-Type Contracts*
- SOP 94-6, *Disclosure of Certain Significant Risks and Uncertainties*
- SOP 98-1, *Accounting for the Costs of Computer Software Developed or Obtained for Internal Use*

EMERGING ISSUES TASK FORCE ISSUES

- EITF Issue No. 87-11, *Allocation of Purchase Price to Assets to Be Sold*
- EITF Issue No. 95-21, *Accounting for Assets to Be Disposed Of Acquired in a Purchase Business Combination*
- EITF Issue No. 98-3, *Determining Whether a Nonmonetary Transaction Involves Receipt of Productive Assets or of a Business*
- EITF Issue No. 00-5, *Determining Whether a Nonmonetary Transaction Is an Exchange of Similar Productive Assets*

AICPA STATEMENTS ON AUDITING STANDARDS

- SAS No. 1, *Codification of Auditing Standards and Procedures* (AICPA, *Professional Standards*, vol. 1, AU sec. 560), "Subsequent Events"
- SAS No. 8, *Other Information in Documents Containing Audited Financial Statements* (AICPA, *Professional Standards*, vol. 1, AU sec. 550)
- SAS No. 22, *Planning and Supervision* (AICPA, *Professional Standards*, vol. 1, AU sec. 311)
- SAS No. 47, *Audit Risk and Materiality in Conducting an Audit* (AICPA, *Professional Standards*, vol. 1, AU sec. 312)
- SAS No. 55, *Consideration of Internal Control in a Financial Statement Audit* (AICPA, *Professional Standards*, vol. 1, AU sec. 319), as amended by SAS No. 78
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- SAS No. 82, *Consideration of Fraud in a Financial Statement Audit* (AICPA, *Professional Standards*, vol. 1, AU secs. 110, 230, 312, and 316)
- SAS No. 90, *Communication With Audit Committees* (AICPA, *Professional Standards*, vol. 1, AU secs. 380 and 722)
- SAS No. 94, *The Effect of Information Technology on the Auditor's Consideration of Internal Control in a Financial Statement Audit* (AICPA, *Professional Standards*, vol. 1, AU sec. 319)

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