

MAY 31, 2010

# BEST PRACTICES FOR VALUATIONS IN FINANCIAL REPORTING: INTANGIBLE ASSET WORKING GROUP – CONTRIBUTORY ASSETS

THE IDENTIFICATION OF CONTRIBUTORY ASSETS  
AND CALCULATION OF ECONOMIC RENTS



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## FOREWORD

This document regarding best practices for *The Identification of Contributory Assets and Calculation of Economic Rents* was developed by a working group sponsored by The Appraisal Foundation.

With changing financial reporting requirements, there is increased interest in the effect of valuation conclusions on financial statements. Because of the need for financial statements to be both reliable and relevant, valuation practices must provide reasonably consistent and verifiable value conclusions. To this end, the valuation community believed that guidance regarding best practices surrounding certain specific valuation topics would be helpful. The topics are selected based on those in which the greatest diversity of practice has been observed.

The Appraisal Foundation sponsored this endeavor as an independent body interested in the advancement of professional valuation and whose stated goal is assuring public trust in the valuation profession. The Appraisal Foundation convened a series of working groups to develop guidance to assist in reducing diversity in practice in valuations performed for financial reporting purposes.

This document presents best practices for the first topic, *The Identification of Contributory Assets and Calculation of Economic Rents*, and was created by the first Working Group. This final document follows the issuance of a discussion draft on June 10, 2008 and an exposure draft on February 25, 2009, as well as a public hearing for oral comments on May 12, 2009, and reflects full consideration of all comments received.

This document includes a Comprehensive Example as well as a Practical Expedient as Appendices. While creating these Appendices, the first Working Group also created a "Toolkit," which is an expansion of the Comprehensive Example. The Toolkit contains additional sample spreadsheets that illustrate application of typical calculations in which contributory asset charges are used. It will be published under separate cover.

*The Identification of Contributory Assets and Calculation of Economic Rents* was developed by a Working Group comprising individuals from the valuation profession who regularly deal with this issue in the context of valuations performed for financial reporting purposes. Its conclusions reflect what the developers believe are best practices. This document has no official or authoritative standing for valuation or accounting.

This document was approved for publication by the Board of Trustees of The Appraisal Foundation on May 22, 2010. The reader is informed that the Board of Trustees defers to the members of the contributory asset Working Group for expertise concerning the technical content of the document.

Questions on the development of this document can be addressed as follows:

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## 1.0 Introduction

1.1 This document setting forth best practices for *The Identification of Contributory Assets and Calculation of Economic Rents* (“Monograph”) is the result of deliberations by the Working Group on Contributory Asset Charges (“CACs”) and input received from interested parties.

1.2 CACs (also known as capital charges or economic rents) are a requisite consideration in applying the Multi-Period Excess Earnings Method (“MPEEM”)<sup>1</sup> to estimate the fair value of a subject intangible asset.

1.3 The MPEEM is a method under the income approach. In applying this form of analysis, the starting point is generally Prospective Financial Information (“PFI”) for the entity that owns the subject intangible asset. From this, a stream of revenue and expenses are identified as those associated with a particular group of assets. This group of assets includes the subject intangible asset as well as other assets (contributory assets) that are necessary to support the earnings associated with the subject intangible asset. The prospective earnings of the single subject intangible asset are isolated from those of the group of assets by identifying and deducting portions of the total earnings that are attributable to the contributory assets to estimate the remaining or “excess earnings” attributable to the subject intangible asset. The identification of earnings attributable to the contributory assets is accomplished through the application of CACs in the form of returns “on” and, in some cases, “of” the contributory assets. These CACs represent an economic charge for the use of the contributory assets. The “excess” earnings (those that remain after subtraction of the CACs) are attributable to the subject intangible asset. These excess earnings are discounted to present value at an appropriate rate of return to estimate the fair value of the subject intangible asset. Thus, the MPEEM could be described as an attribution model under the income approach.

1.4 Expressed in a slightly different manner, when PFI is used to determine the fair value of a subject intangible asset it might include contributions from a number of different assets working together as a group. To arrive at the excess earnings solely attributable to the subject intangible asset, the valuation specialist needs to identify other assets that are contributing to the generation of the asset group’s earnings. If the specific revenues and expenses of these other assets cannot be separated from the PFI for the group of assets, the subtraction of CACs is necessary to recognize the economic benefit provided by the contributory assets. If the contribution of these assets is separated from the group’s aggregate PFI, then CACs are not necessary.

1.5 Whether CACs are theoretically viewed as an attribution of earnings to a contributory asset owned by the entity or as a payment for use assuming the contributory asset is owned by a third party, the fundamental premise is that a contributory asset must be assigned a portion of the economic earnings of the group of assets to derive the excess earnings attributable to the subject intangible asset.

1.6 A fundamental attribute of the MPEEM and of CAC calculations relates to a basic principle of financial theory known as Return on Investment (“ROI”). From the perspective of an investment in contributory assets, an owner of such assets would require an appropriate ROI. The ROI, in turn, consists of a pure investment return (what is referred to herein as *return on*) and a recoupment of the original investment amount (what is referred to herein as *return of*). Thus the most basic underpinning of CAC calculations is that contributory assets should earn a fair ROI.

<sup>1</sup> This term was introduced and is used in the 2001 AICPA Practice Aid Series: “Assets Acquired in a Business Combination to Be Used in Research and Development Activities: A Focus on Software, Electronic Devices and Pharmaceutical Industries”. (An update of this Practice Aid was underway as of the finalization of this Monograph.)

1.7 The distinguishing characteristic of a contributory asset is that it is not the subject income-generating asset itself; rather it is an asset that is required to support the subject income-generating asset. The CAC represents the charge that is required to compensate for an investment in a contributory asset, giving consideration to rates of return required by market participants investing in such assets.

1.8 During the Working Group's discussions and the public hearing, it became apparent that it was necessary to define the specific scope of this Monograph. The discussion of CACs requires the understanding of many accounting and valuation requirements and methods. Discussion of these requirements and methods is beyond the scope of the CAC Monograph and the reader is assumed to already have this understanding. More specifically, this Monograph assumes the reader has sufficient understanding of the following issues:

- A. The PFI used in the MPEEM is to reflect market participant assumptions. This Monograph does not address the identification of market participants or include a detailed discussion of all adjustments to the PFI potentially required to reflect such assumptions.
- B. The application of a specific valuation approach, method, or technique to an asset is based on facts and circumstances from a market participant perspective, and the reader is assumed to have the ability to make this judgment. This Monograph does not discuss the variety of approaches, methods, and techniques or the judgment required to select one. Those applied to any of the assets identified herein are provided for demonstration purposes only.
- C. The discussions in this Monograph as well as the Comprehensive Example and Practical Expedient included in Appendices A and B, respectively, make certain assumptions that might impact the valuation of the contributory assets. Assumptions used in the valuation of an asset are based on facts and circumstances and the reader is assumed to have the ability to make these judgments. The assumptions reflected in the discussions and examples contained in this Monograph are for demonstration purposes only. General principles have been provided for guidance to assist in the calculation of CACs in the application of the MPEEM.
- D. The models used in the sample calculations are for demonstration purposes only and are not intended as the only form of model or calculation, or final report exhibit, that is acceptable. In some cases, these models include details to demonstrate a point made in this Monograph and would not be expected in a typical analysis.

1.9 In writing this document, the Working Group recognizes that professional judgment is critical to effectively planning, performing, and concluding a valuation. Professional judgment requires both competency (appropriate knowledge and experience) and ethical behavior (objectivity and independence). Questioning and skepticism are appropriate because of the nature of judgments. Knowledgeable, reasonable, objective individuals can reach different conclusions for a given set of facts and circumstances. Professional judgment reflects a process of fact-gathering, research, and analysis employed while reaching well-reasoned conclusions based on relevant facts and circumstances available at the time of the conclusion.

1.10 The following important clarifications regarding this document are also made:

- A. These best practices have been developed with reference to US GAAP effective as of the date that this document was published. While the Working Group believes that the best practices described herein may have application outside of US GAAP the valuation specialist should not apply these best practices to valuations prepared under different applicable standards/statutory requirements without a thorough understanding of the differences between them and US GAAP guidance existing as of the date of this publication.
- B. The Working Group has not used the terms “cash flow,” “earnings” and “income” as commonly used in the accounting literature. When the terms “cash flow,” “earnings” or “excess earnings” are used, they refer to an “economic earnings” concept associated with the netting of expense and other charges against revenue.
- C. The Working Group recognizes that there is often a difference between the total amount of goodwill recorded as the result of an acquisition and the amount of goodwill (or “excess purchase price”) that the valuation specialist is typically dealing with during the valuation. For example, an amount is typically recorded to deferred taxes and this amount is not defined until after the work of the valuation specialist is completed. However, the term goodwill is used in this document in both situations to mean the difference between the purchase price being used (either during the valuation process or the recording process) and the net value of all separately recognized assets and liabilities.
- D. The terms “value,” “valuation,” “valuing,” “fair value” and any other reference to value throughout this document are intended, for the purposes of this document, to be stated in accordance with “fair value” as defined in the Financial Accounting Literature, Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) Topic 820 (formerly FASB Statement of Financial Accounting Standards No. 157 (“FASB Statement No. 157”)).
- E. Throughout this document the asset being valued is referred to as the “subject intangible asset” and other assets in the group of assets that also contribute to the group’s earnings as “contributory assets.”
- F. From a historical perspective, the so called “formula approach” of the U.S. Internal Revenue Service’s Revenue Ruling 68-609, 1968-2 C.B. 327 and the earlier ARM 34 are often referred to as the Excess Earnings Method and are different from the MPEEM, although the MPEEM has its roots in this literature.
- G. It should be noted that other methods (aside from the MPEEM) exist for the valuation of intangible assets, and this document does not purport to recommend the use of a specific method for a specific asset.

1.11 This document discusses the definition and identification of contributory assets, calculation of CACs, and considerations when selecting appropriate rates of *return on*, and, in some cases, *return of*, those contributory assets in the application of the MPEEM.



## 2.0 Identification of Contributory Assets

### 2.1 What Constitutes a Contributory Asset

2.1.01 Contributory assets are defined as assets that are used in conjunction with the subject intangible asset in the realization of prospective cash flows associated with the subject intangible asset. Assets that do not contribute to the prospective cash flows associated with the subject intangible asset are not contributory assets. For example, a certain amount of real property (land and buildings) may be necessary to support the cash flow attributable to a subject intangible asset. Alternatively, land held by an entity for investment (a non-operating asset) would not be appropriate to include as a contributory asset if the land is not necessary for, or expected to contribute to, the generation of the prospective cash flows of the subject intangible asset.

2.1.02 The valuation of the subject intangible asset needs to reflect those assets that market participants would treat as contributory assets, regardless of whether an entity has acquired them in a transaction, already owns them, or would need to purchase them.

### 2.2 Contributory Assets

2.2.01 The types of asset categories required to support the cash flows associated with a subject intangible asset are based on the facts and circumstances of the entity and the subject intangible asset. The asset categories and examples of their components that might be considered as contributory assets are illustrated in the following table:

Asset Category	Illustrative Components
Working Capital <sup>2</sup>	Cash, Receivables, Inventory, Payables, Accruals
Fixed (Tangible) Assets	Real Property, Machinery and Equipment, Furniture and Fixtures
Intangible Assets	Trademarks and Trade Names, Technology, Software, Customer Relationships, Non-Compete Agreements, Assembled Workforce <sup>3</sup>

2.2.02 The assumptions used in arriving at the fair value of the subject intangible asset should reflect those assumptions that market participants would use in pricing the subject intangible asset or the group of assets that includes the subject intangible asset. Therefore, the PFI should consider market participant assumptions regarding levels of required contributory assets, either on an individual or grouped basis, as appropriate.

<sup>2</sup> Working Capital for purposes of this document specifically excludes excess cash above normal operating levels and all interest bearing debt and is often referred to in practice as "Debt Free Net Working Capital" or "Net Working Capital."

<sup>3</sup> This list is not all inclusive. FASB ASC paragraphs 805-20-55-2 through 805-20-55-45 (formerly Paragraphs A29 through A56 of the Financial Accounting Standards Board, Financial Accounting Series, "Statement of Financial Accounting Standards No. 141 (Revised 2007) – Business Combinations") provide a more detailed list of potential intangible assets. Industry-specific assets also may exist in specialized circumstances.

2.2.03 The PFI should include normalized<sup>4</sup> levels of required contributory assets reflective of the market participants' view of the entity's position in its life cycle. For example, a normalized level of fixed assets for an entity in its infancy may be different from the level required once the entity reaches a mature stage in its life cycle. To the extent the PFI reflects excess or deficient levels of contributory assets, it should be adjusted to reflect normalized levels.

#### 2.2.04 Working Capital

2.2.05 Working capital is a necessary element of an entity required to support the operations. Working capital, including, for example, operating cash, receivables, inventory, payables, accruals, and other short-term assets and liabilities, is continually needed by the entity and is constantly turning over to maintain the required level without a loss in value due to economic depreciation. As such, it is assumed to be an asset that does not deteriorate in value.

2.2.06 The appropriate level of working capital to use as a contributory asset is a normalized level of working capital. A normalized level of working capital would represent only those working capital items and amounts necessary for market participants to support the operations of the entity, or in the case of valuing a subject intangible asset, those working capital items that would support the generation of cash flow associated with the subject intangible asset.

2.2.07 If an entity has deferred revenue, this liability may or may not be included as a component of the working capital that is then used as the basis for a CAC. Whether to include or exclude the deferred revenue as a component of the working capital will depend on how the PFI was developed. If the revenue component of the PFI was developed on an accrual basis, then it likely would be appropriate to include the deferred revenue as a component of working capital. The Working Group believes that deferred revenue should be included in working capital on a normalized basis if deferred revenue is a part of an entity's ongoing operation. The Working Group also believes that, in such a circumstance, the level of accrued deferred revenue included in net working capital for purposes of calculating the CAC should reflect an entity's ongoing operations and be consistent with the PFI, as opposed to a level reflecting a "one-time" adjustment<sup>5</sup> to the fair value of any legal performance obligation that would arise in a business combination accounting setting.

#### 2.2.08 Fixed Assets

2.2.09 Fixed assets are needed primarily to enable the productive capability of an entity. These assets may include land, land improvements, buildings, machinery, furniture, fixtures and equipment, leasehold improvements, and natural resources, for example. Fixed assets frequently are assets that deteriorate and require replenishment/replacement to sustain the productive capability of the entity.

4 Normalized, as used in this document, refers to assumptions that are consistent with the entity or subject intangible asset from a market participant perspective. For example, if it is observed that the PFI includes excess (or deficient) levels of an asset, a normalized level of the asset would include adjustments to reflect the level needed to operate, and would exclude the impact of the excess (or deficient) level from a market participant perspective. This use of the term "normalized" is different from the normalization adjustments that may be applied in a business valuation when adjusting financial data to remove the effect of nonrecurring or unusual items.

5 See, for instance, the discussion of "one-time" adjustments in paragraph 3.2.03.

2.2.10 The stage of an entity in its life cycle may influence the level of fixed assets necessary for operations at a given point in time. For example, the fixed asset levels of an early stage entity may not be representative of the fixed asset levels required for mass product commercialization. An estimate of a normalized level for market participants would be necessary when calculating the CAC. This normalized level should represent the amount that market participants would consider appropriate to support the subject intangible asset.

2.2.11 If the fixed assets in place for an acquired entity (or other subject entity) as of the valuation date do not represent the level of fixed assets necessary to generate the prospective cash flow stream, then it would be appropriate to use an estimated level of those necessary fixed assets based on market participant assumptions. This normalized level of fixed assets should be measured at fair value and should be reflected in the PFI.

#### 2.2.12 Intangible Assets

2.2.13 Intangible assets that meet the recognition criteria under FASB ASC Topic 805 (formerly FASB Statement of Financial Accounting Standards No. 141 (Revised 2007) (“FASB Statement No. 141(R)”), as being either legal/contractual or separable represent contributory assets if their use contributes to an aggregate economic earnings stream associated with the subject intangible asset. FASB ASC paragraphs 805-20-55-2 through 805-20-55-45 (formerly paragraphs A29 through A56 of FASB Statement No. 141(R)) provide additional guidance regarding, and examples of, intangible assets that meet the criteria for recognition as an asset apart from goodwill. Intangible assets identified in FASB ASC Topic 805 include marketing-related intangible assets, customer-related intangible assets, artistic-related intangible assets, contract-based intangible assets, and technology-based intangible assets. Valuation specialists should first consider whether the revenue or profits can be split to allocate the economic earnings stream among intangible assets. The use of a royalty savings method is viewed as a form of profit split in the context of this document. Absent the ability to make such a division, the use of a CAC is the best method for compensating for the contributory asset’s contribution to the aggregate economic earnings stream associated with the subject intangible asset.

2.2.14 Additionally, other reliably measureable intangible assets (or elements of an entity) that do not meet the criteria under FASB ASC Topic 805 for recognition separate from goodwill, such as an assembled workforce, would be considered as contributory assets if they contribute to the generation of the cash flow stream associated with the subject intangible asset. An assembled workforce is one example of an element of goodwill that generally is recognized as a contributory asset although it is not recognized on the balance sheet apart from goodwill under FASB ASC Topic 805.

2.2.15 The determination of whether a CAC for elements of goodwill is appropriate should be based on an assessment of the relevant facts and circumstances of the situation, and the valuation specialist should be cautioned to not mechanically apply CACs or alternative adjustments for elements of goodwill if the circumstances do not warrant such a charge. The Working Group believes that assembled workforce is typically the only element of goodwill for which a CAC is taken. Accordingly, the burden of proof is higher to support taking CACs or making alternative adjustments for elements of goodwill other than assembled workforce.

2.2.16 If other elements of goodwill are significant contributors to the stream of economic earnings associated with the subject intangible asset, the Working Group believes that the valuation specialist should a) seek to identify and estimate the fair value of those elements (when reliably measurable) for use in calculating CACs, b) make an alternative adjustment to the economic earnings stream in order to compensate for the contribution of the other element or elements of goodwill, or c) consider another method (e.g. the Greenfield method) that more accurately isolates the economic earnings stream attributable solely to the subject intangible asset.

## 3.0 Valuation Methodologies and the Application of Contributory Asset Charges

### 3.1 Introduction and General Concepts

3.1.01 All valuation methodologies applied in the valuation of any asset may be broadly classified into the cost, market, or income approaches. In a valuation study, all three would be considered (for application), and the approach or approaches deemed most appropriate would then be selected as the proper approach(es) to use in the valuation of that asset. The valuation of intangible assets is most commonly conducted using an income approach in which there is an identifiable stream of cash flows associated with that intangible asset. Typical income approach methods used in the valuation of intangible assets include the relief from royalty method, the MPEEM, and a number of other methods. The MPEEM is commonly employed in the valuation of certain technology (existing or in development), customer relationships, and many other assets.

3.1.02 Prior to application of the MPEEM, the valuation specialist should ensure that the PFI estimates are representative of the views of market participants. Inclusion of the effects of entity-specific synergies should be avoided, while market participant synergies are appropriate for inclusion in the PFI.

3.1.03 The MPEEM requires PFI estimates of cash inflows and cash outflows, combined with charges for *returns on*, and where applicable, *returns of* tangible and intangible assets employed in the generation of cash flows associated with the subject intangible asset (including elements of goodwill such as the assembled workforce).

3.1.04 Cash inflows are primarily represented by revenue. It is important to note that, in the application of the income approach to value a subject intangible asset, the valuation specialist should properly identify the correct stream of revenue associated with the subject intangible asset. For some intangible assets, this stream of revenue may be the same as the revenue estimates for the entire entity, while for other intangible assets the valuation specialist may identify a portion of this total revenue.

3.1.05 Cash outflows associated with the subject intangible asset might include direct and indirect expenses for costs to complete (in the case of in-process research and development (“IPR&D”)), manufacturing, sales, marketing, routine technical maintenance, general and administrative expense, and taxes, for example.

3.1.06 The contributory assets reflected in the MPEEM should include all assets required by market participants to realize the cash flows associated with the subject intangible asset. An acquired or acquiring entity may already have access to some of these assets, or the acquiring entity may need to gain access to them in some other way if they are necessary to generate the prospective cash flows in the aggregate. The CACs should be based on the fair value of the required market participant levels of contributory assets. These charges generally represent a *return on* and, in some cases, a *return of* these contributory assets based on the fair value of such contributory assets.

3.1.07 In practice, for certain classes of assets (for instance, working capital and fixed assets) book value is often used as a proxy for the fair value on which to calculate CACs. The Working Group believes that the use of book value as a practical expedient for measuring fair value can be appropriate based on facts and circumstances so long as the use of book value is consistent with the fair value measurement objective as it is applied to the subject intangible asset. Further, market participant views of the levels of contributory assets for the subject entity are often estimated in practice with reference to industry comparable data, which is often only available based on book value. The Working Group believes that valuation specialists should exercise caution, however, because the concept remains that the book value of contributory assets may only be utilized when they are not believed to be significantly different from fair values.

3.1.08 The Working Group believes that the fair value of an asset should not differ depending on the tax structure of a particular transaction.<sup>6</sup> Market prices of fixed assets reflect the tax benefit of depreciation. Similarly, if an intangible asset were to be sold (either as a single asset or as part of a group of assets, depending on highest and best use), the purchase price would reasonably reflect the benefit of amortizing the asset for tax purposes. For this reason, the fair value of an intangible asset includes the benefit of the tax amortization when applying an income approach. Therefore, CACs on contributory assets should be based on the fair value of these assets including their tax depreciation benefit or tax amortization benefit (“TAB”). (It is not within the scope of this document to address whether application of the cost approach to value intangible assets should be on a pre-tax or after-tax basis. For examples in this document, pre-tax costs are used because the Working Group has observed this to be the most prevalent method. If a pre-tax cost is used, the addition of a TAB is not commonly considered appropriate, whereas the addition of a TAB is commonly considered appropriate with an after-tax cost.<sup>7</sup> If an after-tax method with the TAB is used in an analysis, adjustments would be necessary for consistency of assumptions.)

3.1.09 Careful analysis is necessary to determine which assets or elements of an entity contribute to a subject intangible asset. In some cases, a determination can be made to exclude (as contributory) assets that are not required by the subject intangible asset. Many assets are contributory to all subject intangible assets. In this circumstance, the CAC earned by a contributory asset should be allocated to each subject intangible asset using a method that appropriately reflects its utilization. For example, a subject intangible asset that uses twice as much of a contributory asset as another subject intangible asset should incur twice the CAC. When objective information is available, it forms the basis of a CAC allocation. In the absence of reliable data, a reasonable assumption should be used. The most common method to allocate CACs to assets generally is based on the relative revenue generated by each subject intangible asset each year. There may be instances, however, when other methods such as relative amounts earned, relative units produced, relative square footage occupied, relative headcount used or relative costs expended by each subject intangible asset, each year, may represent a more appropriate allocation method. When a contributory asset is not expected to contribute to a particular subject intangible asset, its return is not charged against that subject intangible asset. (Its return is, however, charged against all of the future or current intangible assets to which it does make a contribution.)

3.1.10 Following identification of the cash inflows and outflows associated with the subject intangible asset and the reflection of CACs, the remaining net cash flows (or multi-period excess earnings) are attributed to the subject intangible asset and, when discounted to present value, provide an estimate of the subject intangible asset’s value (prior to application of the tax amortization benefit). (See, for example, FASB ASC paragraphs 820-10-35-32 and 820-10-35-33 (formerly paragraph 18b of FASB Statement No. 157) and paragraph 2.1.10 of the 2001

<sup>6</sup> The discussion here and elsewhere assumes the tax benefits of depreciation and intangible asset amortization are available to market participants.

<sup>7</sup> This parenthetical is addressing the cost approach, not a cost-savings method that is an income approach.

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3.1.11 The Working Group believes that valuation specialists should take special care when application of the MPEEM results in an individual year’s excess earnings being negative or indicates a negative value in the aggregate solely as a result of the application of CACs. The valuation specialist should perform additional review of the calculations to ensure the integrity of the inputs and the structure of the analysis. In some cases, a negative value in the aggregate may indicate that there is no economic basis for recognizing the asset (e.g. a negatively valued customer relationship). In other cases, a negative value for an asset within a portfolio of assets may need to be offset against positive values of the remaining assets within the portfolio or recognized as a distinct liability (e.g. a single contract within a group of contracts, if appropriate from an accounting perspective). Further, a negative excess earnings amount for a given year within a projection period associated with a subject intangible asset should not be disregarded in measuring the fair value of that asset.

3.1.12 The Working Group believes that issues such as those discussed in Section 3.1.01 through 3.1.11 demonstrate the complexity of applying the MPEEM and the care that should be taken by valuation specialists in estimating fair value utilizing this method. An important attribute of this method is that it provides the ability to reconcile to the entity value and demonstrates that the calculation of the CAC does not create or destroy aggregate asset value. The application of CACs is essentially an attribution of earnings to the contributory assets.

## 3.2 Working Capital

3.2.01 In considering the appropriate CAC for working capital, it should first be noted that increases or decreases in required working capital would not be included as a charge or benefit to the cash flow because growth investments (or “dis-investments”) are accounted for through increases or decreases in the CAC. It should be noted that individual components of working capital (e.g. accounts receivable and inventories) may be subject to write-downs from time to time. Such decreases in value are charged through the income statement, and recurring expense assumptions would encompass future expectations regarding write-downs. Thus, it is appropriate to charge the subject intangible asset only with an appropriate *return on* working capital that is based on the required level of working capital for each period. In other words, the *return on* working capital represents the charge for utilization of working capital by the subject intangible asset. When the working capital is no longer required (e.g. at the end of the economic life of the subject intangible asset) it can be used by other assets. One common method of calculating the period-specific working capital CAC would be based on the required *return on* total working capital as a percentage of total revenue with that percentage then applied to the specific revenue associated with the subject intangible asset. See Exhibit A-4 in Appendix A for an illustrative example of how to calculate a CAC for working capital on an annual basis (the Comprehensive Example). See also Appendix B for an illustrative example of a practical expedient in the calculation of a working capital CAC (the Practical Expedient).

3.2.02 One issue that arises in certain industry sectors is the appropriate treatment of negative working capital. This does not refer to those circumstances where inadequate working capital has been acquired as part of a transaction. Instead this is the circumstance in certain industry sectors for which negative net working capital is the norm. It is the view of the Working Group that negative working capital that is generated in the normal course of business in certain industry sectors enhances overall entity value and should be considered in determining the appropriate level of working capital to serve as the basis for calculating CACs. This will, in effect, create “negative” CACs for working capital, the apportioned

amount of which would enhance the value of the subject intangible asset. This treatment is appropriate because it reflects the economic realities in those industry sectors and is consistent with the cash flow benefit reflected in the PFI.

3.2.03 Another issue is the impact of one-time business combination accounting adjustments to working capital such as inventory step-ups. The Working Group believes that such one-time adjustments should be excluded from the initial and ongoing levels of working capital (based on market participant assumptions) used in the CAC calculation. This view is based on the belief that whether a subject intangible asset is being valued as part of a business combination or for other purposes it would be valued the same. The inclusion of one-time business combination accounting adjustments may cause the subject intangible asset to be valued differently for different purposes and, further, is not representative of the long term need for working capital. The Working Group believes that valuation specialists should not only exclude one-time adjustments from market participant levels of working capital used in the CAC calculation, but should also make sure to adjust for the effects of any one-time modifications of the PFI utilized in the valuation of the subject intangible asset to avoid double counting profit or expense. More specifically, the profit included in the inventory step-up (if applied) would need to be removed from the PFI of the subject intangible asset so that the profit is not recognized more than once.

### 3.3 Land

3.3.01 The CAC calculation associated with land is different from that associated with other fixed assets that deteriorate in value over time and exhibits similarities to the CAC calculation for working capital. Land is not assumed to deteriorate in value over time. Special consideration should be given to the appropriate market participant level of land and its associated fair value serving as the basis for the calculation of the CAC, as land values, over time, may move independently from the value of the entity or of the subject intangible asset. The CAC should be based on the fair value of land necessary to support the earnings associated with the subject intangible asset at any time.

### 3.4 Fixed Assets (Not Including Land)

3.4.01 The Working Group is aware of many techniques for calculating CACs for fixed assets that are currently in use. This Section 3.4 and the Comprehensive Example present the two techniques that are believed to be the most common in the profession (in a comprehensive application). The Working Group understands these detailed calculations often are not necessary and that more simplified versions are often appropriate (please see the Practical Expedient, Appendix B). Both techniques assume that fixed assets other than land deteriorate in value and, as a result, the associated CAC needs to incorporate aspects of both *returns of* and *returns on* these assets. In addition, the Working Group believes that each technique should yield approximately the same aggregate CAC as it relates to the subject intangible asset when applied consistently. Finally, the Working Group has set forth these calculations assuming CACs are applied on an after-tax basis. Pre-tax presentations of these techniques should be considered equally acceptable presuming the appropriate adjustments to a pre-tax basis of presentation have been made.

3.4.02 The intent of applying a CAC is to provide a charge for the use of the appropriate level of fixed assets required to generate the revenue and earnings necessary to support the subject intangible asset in each year of the subject intangible asset's projection period. Acquired (or initial/current) fixed assets and future capital expenditures represent investments and cash charges at specific points in time. These investments in fixed assets have utility beyond the period of the cash charge as reflected by the capitalization and depreciation of these investments. CACs



capture this future utility by replacing the cash charges with a series of charges over the economic life of the fixed asset, as represented by the required *returns of* and *returns on* the fair value of the necessary level of fixed assets. The present value of the series of charges in the aggregate should be equivalent to the investment such that no value is created or destroyed in the context of the entity as a whole.

3.4.03 Tax or accounting depreciation can be used in these techniques. In this document and the Comprehensive Example, tax depreciation has been used. Use of accounting depreciation as an option is addressed in the Practical Expedient. Care should be taken to make sure that all assumptions are consistent, whichever approach is used. Tax depreciation is a non-cash expense that decreases taxable income. As tax depreciation is added back to after-tax income to arrive at free cash flow, the net effect is to reflect the benefit of tax depreciation embedded in the fixed assets. Tax-effecting EBITDA has the impact of increasing taxes and removing the benefit of tax depreciation of the fixed assets. Alternatively, tax-effecting EBIT and adding back tax depreciation retains the benefit of tax depreciation in the projections. Although the Working Group is aware of techniques that tax-effect EBITDA, the calculations shown in the Comprehensive Example in Appendix A use tax-effected EBIT. By doing so, the benefit of tax depreciation, which is already reflected in the fair value of the fixed assets, is not double counted.

3.4.04 It is important to note that both Technique A and Technique B below rely on future estimates of fixed asset fair value balances. The valuation specialist should be careful to consider whether growth in fixed assets is required to achieve the estimates of future cash flows for the subject intangible asset as well as the entity and whether this growth occurs at the same rate as revenue growth or at a different rate. This consideration can be magnified by changes in fixed asset turnover for the entity as a whole, and reduced requirements for fixed assets at an individual subject intangible asset level.

3.4.05 A general description of the detailed version of each of the two most common techniques currently in practice is presented below. For purposes of this Monograph, the term “economic depreciation” is used to indicate the aggregate decline in value that occurs over the economic life of the asset. This term is used here in order to differentiate this concept from tax or accounting depreciation.<sup>8</sup>

#### 3.4.06 Technique A: “Average Annual Balance”

3.4.07 The CAC is calculated based on two separate charges for the *return of* and *return on* the fair value of the fixed assets in each year of the projection. The *return of* for each year is equivalent to the sum of: a) annual economic depreciation for the fair value of the acquired or current fixed assets (adjusted to market participant levels) and b) annual economic depreciation for the projected market participant levels of capital expenditures required to support the entity’s operations and the subject intangible asset over that asset’s remaining useful life. The *return on* is derived by applying an appropriate after-tax rate of return consistent with the risk of an investment in the fixed assets. The *returns on* are calculated for each year of the projection based on the average balance of the required future estimated fixed assets at market participant levels. Typically, CACs for both the *returns of* and *returns on* are first calculated in aggregate for the entity and are then allocated across assets to which they contribute (based on a method such as relative annual revenue, discussed above). CACs are deductions that exclude capital expenditures (because the capital expenditures are replaced by and incorporated in the CAC for the fixed assets). The CACs are incorporated in the MPEEM in any given year as follows:

<sup>8</sup> The Working Group realizes that this use of the term is contrary to its common use regarding the factors of depreciation of tangible assets, which are described as including physical, functional, and economic obsolescence factors.

## EBITDA

Less: Tax depreciation

EBIT (amortization assumed to be zero)

Less: Taxes

Debt free net income

Add: Tax depreciation

Less: *Return of the fixed assets* (economic depreciation of fair value)Less: *Return on the average balance of the fixed assets* (at fair value)

Less: Other CACs (as necessary)

Equals: Excess earnings or cash flow

3.4.08 See Exhibit A-5 in Appendix A for an illustrative example of how to calculate a CAC for fixed assets using the average annual balance technique.

3.4.09 Deducting tax depreciation expense in calculating EBIT does not necessarily represent the *return of* the fixed asset investment because tax depreciation is not necessarily equivalent to economic depreciation in a given year. The Working Group recognizes that the sum of tax depreciation charges over the life of the fixed asset will be equivalent to the sum of the economic depreciation charges over the life of the fixed asset, presuming the tax basis of the fixed asset resets to fair value as of the date of valuation. The only difference would be that of timing. In practice, the *return of* the fixed assets is often assumed to be equivalent to the annual tax or accounting depreciation and is netted against the add back of depreciation and the CACs presented are thus limited to the *return on* the fixed assets. The Working Group recognizes that such a simplification may have an insignificant effect on the calculation of the fair value of a subject intangible asset, particularly when fixed assets represent a relatively insignificant proportion of the economic balance sheet of the entity.

## 3.4.10 Technique B: “Level Payment”

3.4.11 CACs are combined into one charge that takes into account both *return of* and *return on* the fair value of fixed assets. The principle behind this technique is that, in the application of the MPEEM, the cash flows associated with the subject intangible asset would need to be assessed a series of level annual payments for the use of the fixed assets required to produce the cash flows associated with the subject intangible asset. The level payment CAC calculation is applied to both the fair value of the acquired or current fixed assets *and* projected capital expenditures (adjusted to market participant levels). Just as in Technique A, the concept is that the required current and future fair values of fixed assets at market participant levels should serve as the basis for each year’s CAC. Similar to Technique A, a CAC representing both the *returns of* and *returns on* is first calculated in aggregate and then applied in a prorated manner (such as that based on a percentage of revenue) to the revenues of the subject intangible asset. In Technique B, the CAC typically is calculated as a series of level annual payments based on a constant after-tax rate of return consistent with the risk for an investment in the fixed assets. Such payments can be calculated discretely for the acquired or current fixed assets and each projected annual capital expenditure (referred to herein as a “waterfall payment”) or some variation thereof that incorporates the annual beginning balance of the fixed assets and a weighted remaining useful life of each respective balance. The most precise manner to determine the CAC is to calculate an amount for each equivalent remaining useful life (“RUL”) asset group

(waterfall payment) for the acquired or current fixed assets and capital expenditures. Preparing calculations at this level results in outcomes that are essentially equivalent to those from Technique A. The CACs are incorporated in the MPEEM, in any given year, as follows:

EBITDA  
 Less: Tax depreciation  
 EBIT (amortization assumed to be zero)  
 Less: Taxes  
 Debt free net income  
 Add: Tax depreciation  
 Less: Level Payment CAC (*return of and on the fixed assets, at fair value*)  
 Less: Other CACs (as necessary)  
 Equals: Excess earnings or cash flow

3.4.12 See Exhibit A-6 in Appendix A for an illustrative example of how to calculate a CAC for fixed assets using the level payment technique.

3.4.13 Both techniques allow for the alignment of the entity value analysis with the asset fair values and demonstrate that the calculation of the CAC does not create or destroy aggregate asset value. The application of CACs is essentially an allocation of earnings to the contributory assets and, as such, should result in approximately the same aggregate earnings and asset values.

3.4.14 The Working Group is aware that certain practical expedients to both Technique A and Technique B have been used in practice. For instance, techniques have been observed that incorporate “smoothing” the annual CAC for fixed assets (and often for other asset categories as well), to a fixed percentage of revenue, which combines both the calculation of the CAC, and the allocation (on a relative revenue basis) of the CAC to subject intangible assets into a single factor. Another variant of such techniques aggregates fixed assets into a single pool, rather than treating them as discrete “vintages” based on year of acquisition as is the case in both Technique A and Technique B. The Working Group recognizes that the use of such techniques may have an insignificant effect on the calculation of the fair value of a subject intangible asset, particularly when fixed assets represent a relatively insignificant proportion of the economic balance sheet of the entity. See Appendix B (Practical Expedient) for an illustrative example of calculating a CAC for fixed assets using a “smoothing” technique.

3.4.15 The Working Group believes that valuation specialists should be cautious in deciding whether to apply such practical expedients when fixed assets represent a significant proportion of an entity’s economic balance sheet. Also, such calculations are particularly sensitive to RUL assumptions when aggregating fixed assets into a single pool rather than treating them as discrete “vintages” based on year of acquisition. Conceptually, the remaining life of a pool of fixed assets in a given year should be calculated as the weighted average of the RULs of each “vintage.” This assumption will likely vary from year to year, as existing fixed assets age, and new fixed assets are acquired. Precise estimates of an aggregate RUL are best extracted from applying either Technique A or Technique B, which would tend to counteract the time saving benefit of applying a practical expedient of this kind. Nonetheless, estimates of an aggregate annual RUL for a pool of fixed assets may be sufficient when the fixed asset balance is a relatively insignificant portion of the entity’s economic balance sheet.

3.4.16 While the Working Group has applied these techniques on an after-tax basis in the example calculations, some believe that pre-tax calculations would more closely emulate an actual circumstance of renting or leasing assets, as rental or lease payments are deductible on a pre-tax basis. It is the Working Group's view that it does not matter whether these calculations are performed on a pre-tax or after-tax basis (since they are essentially subsets of the same methodologies) as long as the appropriate adjustments are made such that resulting value estimates are consistent, and value is neither created nor destroyed as a result of the technique selected. Terms such as "gross lease" or "gross rent" have been used to describe such pre-tax calculations. A sample "gross lease" calculation has been included in the Toolkit associated with this Monograph (see Foreword for additional description of the Toolkit). The Working Group has observed that CAC calculations are more commonly applied in practice on an after-tax basis and as a result has chosen an after-tax presentation as part of this Monograph.

### 3.5 Identified Intangible Assets and Contributory Elements of Goodwill (Including Assembled Workforce)

3.5.01 In calculating the CAC associated with contributory intangible assets, it is often assumed that the costs to maintain the value of a particular contributory intangible asset are considered a period expense (e.g., recruiting and training to replace people that leave and thereby maintain workforce value, sales and marketing expense to maintain customer relationship value when customer relationships are valued by a method other than MPEEM), and therefore these costs serve as a proxy for *return of* the investment in existing and future assets. While it may be theoretically correct to add back all expenses related to the maintenance of the contributory intangible assets to pre-tax cash flow and then take a true *return of* for a particular contributory intangible asset, there may be difficulty in estimating supportable costs to be added back. Expenses in the nature of identifiable growth investments might be an exception. Significant identifiable growth investments are analogous to incremental working capital and capital expenditures in excess of depreciation and should not be deducted (see Section 3.7 regarding assembled workforce).

3.5.02 It is the view of the Working Group that the common practice of assuming that costs to maintain and enhance intangible assets are part of the expense structure of the entity's business is an appropriate simplifying assumption (subject to the potential exception discussed above). Attempts to separate out expenses associated with maintaining or enhancing intangible assets, coupled with calculating an appropriate *return of* for a particular contributory intangible asset might be difficult in practice, because of the inherent challenge in isolating expenses that accurately match an appropriate *return of*. This common practice, however, should be supplemented by market participant research into appropriate expense levels for the aggregate entity and for the subject intangible asset to further support the use of the expense structure of the entity/asset as a proxy for *return of*, when practical. Also, for entities that have grown through acquisition, valuation specialists should remove any amortization expense related to contributory intangible assets that could, in effect, "double count" the proxy for *return of*. Valuation specialists should be cautioned that, in instances where the fair value of a contributory intangible asset is significantly different from a stream of foregone expenses, the use of the expense structure of an entity may not match an appropriate *return of* the fair value of the contributory intangible asset. The Working Group believes that in such an instance, an add back of expenses together with an appropriate calculation of the *return of*, based on fair value, would more accurately reflect the CAC associated with the contributory intangible asset.

3.5.03 The Working Group believes that an alternative approach to CACs for contributory intangible assets should be used when the contributory asset has been valued using a relief from royalty method. The relief from royalty method involves the estimation of an amount of hypothetical royalty savings enjoyed by the entity that owns the intangible asset because that entity is relieved from having to license that intangible asset

from another owner. This same royalty rate should be used as a pre-tax charge in the calculation of earnings of the subject intangible asset because the use of a royalty savings method is viewed by the Working Group as a form of profit split. (Alternatively, the royalty rate could be converted to an after-tax rate and shown as an after-tax charge in the calculation of cash flow of the subject intangible asset, which would be a mathematically equivalent treatment.) A royalty rate should be analyzed to determine whether it compensates the licensor for all functions (ownership rights and responsibilities) associated with the asset. Such an analysis would include consideration of expenses recognized by the licensee versus expenses otherwise considered to be the responsibility of the licensor. A royalty rate that is “gross” would consider all functions associated with ownership of a licensed asset to reside with the licensor while a royalty rate that is “net” would consider some or all functions associated with the licensed asset to reside with the licensee.

3.5.04 The Working Group recognizes that there has been diversity in practice as to whether multiple subject intangible assets (which share the same revenue/cash flows) should be valued using an MPEEM and, if so, whether such analyses should reflect simultaneous cross charges between subject intangible assets. For example, both customer-related assets and technology assets have been observed in practice as being valued using this method with such cross charges reflecting an attempt to adjust for overlapping revenues/cash flows.

3.5.05 The Working Group strongly believes that the use of simultaneous application of the MPEEM with either single or multiple cross charges to multiple intangible assets that share the same revenue/cash flow is not best practice and should be avoided.

3.5.06 One alternative, when possible and supportable, for avoiding overlapping revenues/cash flows would be to “revenue/cash flow split” the PFI related to the multiple subject intangible assets such that their analyses are mutually exclusive. In such a case no one subject intangible asset should be charged for any other which has been subject to the revenue/cash flow split. Valuation specialists should be cautioned, however, against the use of arbitrary means by which they split revenues or cash flows. Thus, in performing a revenue or cash flow split, the valuation specialist may give consideration to factors such as the following as support for the split (this list is not intended to be exhaustive):

- a clearly delineated revenue split between assets,
- a rate of return analysis on marketing expenses versus research and development expenses,
- a projected revenue pattern associated with different generations of a product,
- the migration of relative product contributions between assets, or
- the relative contribution of core or base technologies as compared to applied technologies.

3.5.07 Another alternative is to value only one subject intangible asset using the MPEEM while any other subject intangible asset would be valued using an alternate method. Examples of these alternate methods are relief from royalty, cost approach, “with and without,” and techniques that indicate a “synthetic” or “hypothetical” royalty (in which a portion of the earnings are identified that essentially represent a royalty payment, but without the use of royalty rate market data<sup>9</sup>). In this case, the asset valued using the MPEEM would be charged a royalty as described above for the other asset(s) to the extent that the other asset(s) is (are) contributory or to the extent that the other asset’s (assets’) value(s) is (are) derived from overlapping revenues/cash flows.

<sup>9</sup> These techniques might include, among others, what has been referred to as a “quadrant” or “separation” technique, as discussed in Horvath, James L. and David W. Chodikoff. 2008. *Taxation and Valuation of Technology: Theory, Practice, and the Law*, and the subject of a recent presentation by Squires, Renton C., “Dual Primary Asset Valuation,” Presentation at the American Society of Appraisers’ Advanced Business Valuation Conference, Boston, October 20, 2009.

### 3.6 Contributory Asset Charges in Future Periods (or Over Time)

3.6.01 The MPEEM, as a form of the income approach, relies on the PFI associated with the subject intangible asset. It is important that the valuation specialist understand that the composition of assets that generate cash flow associated with the PFI will change over time. For instance, fixed assets, technology and customer relationships that existed as of the valuation date will contribute a lesser amount to the PFI over time as these assets decay economically and are replaced by future assets. Therefore, the rate of replacement is a key assumption for the valuation specialist to consider. Further, the relative importance of the various types of assets (e.g. marketing vs. technology intangibles) may change over time impacting their relative contribution of earnings to the asset group's PFI in future periods. Valuation specialists should consider the contributions to cash flow of the various contributory assets (on a market participant basis) and charges for these assets should be estimated for each year in the projection period, rather than, for instance, automatically fixing such levels to amounts estimated at the valuation date. The Working Group does note that estimating the appropriate market participant level of contributory assets is highly dependent on facts and circumstances.

3.6.02 In calculating a CAC, the valuation specialist should consider whether each of the contributory assets used in the previous period CAC calculation remains relevant in the next period. There is diversity in practice as to what period CACs should be calculated when considering current versus future levels of intangible asset investment. It is the Working Group's position that, generally, CACs for the contributory intangible assets should be applied throughout the life of the subject intangible asset. This view is based on the premise that while the specific contributory intangible asset on hand as of the valuation date may diminish over time, it will be supported, maintained, enhanced and/or replaced and, therefore, future levels of the contributory intangible asset will be present to contribute to the generation of cash flows. If a contributory intangible asset would not be maintained or replaced upon expiration, for example, in the case of a non-compete agreement arising from a transaction between a buyer and seller, the CAC would only be applied through the economic life of the contributory asset. Key to determining whether it is appropriate to continue to take a CAC on a particular asset or asset category is whether that type of asset continues to be necessary to support the earnings associated with the subject intangible asset.

3.6.03 The migration of the utilization of a contributory asset should not be confused with the economic deterioration in value of a contributory asset that was in place as of the valuation date. It may be assumed that the economic contribution of a certain type of contributory asset is maintained over the life of the subject intangible asset through investments to create the next generation(s) of the contributory asset. For example, an MPEEM analysis valuing customer relationships that shows no CACs for technology (that has been valued using a cost approach, for example) beyond the economic life of the existing developed technology overlooks the circumstance that new technology will most likely be developed and would be necessary to support the ongoing customer relationships. Note that, in such cases, the investment in creating the new technology beyond replacement of the existing technology (a growth investment) may need to be adjusted out to avoid double counting. (See discussion regarding pre-tax growth investments in Section 3.7.)

3.6.04 The Working Group notes that many contributory assets are valued using the relief from royalty method of the income approach. It is the Working Group's belief that if this method has been used to value a contributory asset, the appropriate corresponding method would be to perform a profit split by deducting a royalty from the cash flows of the subject intangible asset that is consistent with the royalty that was utilized to value the contributory asset. The valuation specialist should also consider whether the royalty would vary over time. Additionally,

the valuation specialist should consider whether the derived royalty rate is all-inclusive of the benefits and costs associated with the asset (see paragraph 3.5.03). If not, further analysis and adjustments may be necessary to reflect an appropriate royalty rate and expense structure.

3.6.05 In cases of business combinations, there may also be instances in which certain assets of the target (acquired) entity are being abandoned by the acquiring entity (reflective of market participants), but a CAC for that type of asset is still required. For example, the acquiring entity may plan to abandon the trade name of the acquired entity. However, the trade name of the acquiring entity would then be substituted in its place. When the abandoned asset is replaced by another asset (such as the acquiring entity's trade name) and is necessary to support the asset group's PFI, a CAC should still be included for this required contributory asset.

3.6.06 It should be noted that, for those situations above, the valuation specialist should also consider whether the contributory asset to be used or replaced in the future would have an economic return that varies over time. For example, the contribution to the earnings associated with a subject intangible asset by a particular contributory asset may increase over time. A trademark of an acquired entity being replaced by a stronger trademark (reflective of market participants) is an example of this situation. In such case, the PFI would need to reflect the potentially higher earnings caused by the use of a stronger trademark. As another example of such variability, the contribution to earnings by technology assets may initially be higher for early-stage technologies, but as customer relationships evolve over time, the technology asset's contribution to the PFI may decline relative to the contribution by the customer relationship asset. These changes could be reflected as a change in the royalty rate over time (based on market participant data).

3.6.07 In some circumstances, required levels of contributory assets will scale with revenues. Common examples of these are working capital, assembled workforce, and fixed assets. In these situations, the valuation specialist should understand if the contributory asset would grow at a rate equal to the rate of revenue growth or at a rate different from this rate of growth. Reference to market participant metrics such as asset turnover rate (in the case of working capital and fixed assets) may be helpful to the valuation specialist when making the determination. See Appendix B, the Practical Expedient, for an illustrative example.

3.6.08 The stage of an entity in its life cycle (as viewed by a market participant) is important as the valuation specialist considers future contributory asset requirements. In many cases early stage companies may be experiencing rapid growth which allows them to leverage existing assets more efficiently over time and, as such, the level of contributory assets may decline as a percentage of revenue (in some cases this declining percentage may be offset through allocation of the aggregate CAC to current and future assets thereby effectively "smoothing" the CAC allocated to the subject intangible asset over time). Further, mature companies would expect to see relatively stable levels of assets in comparison to revenue. Finally, companies in decline may have assets that are no longer contributing to the cash flows associated with the subject intangible asset.

### 3.7 Special Adjustments for Growth Investments in Contributory Intangible Assets Valued Using the Cost Approach<sup>10</sup>

3.7.01 In the PFI for an entity, growth investments in net working capital and fixed assets are shown as “below the line” (after-tax) expenditures. In the application of the MPEEM, such expenditures are replaced with CACs on the “grown” value of the net working capital or fixed assets existing in each year of the PFI. Conceptually, the present value of the increment of the CAC relating to the growth investment should equal the amount of the growth investment.

3.7.02 In contrast, growth investments in the assembled workforce (and in other assets, at times) are pre-tax expenditures. Assuming the assembled workforce was valued based on pre-tax costs, the CACs on those growth investments are calculated at amounts that assume the value of the assembled workforce has grown by the same amount as the pre-tax expenditure. When it has a significant effect on the analysis, the growth investment in the assembled workforce should be differentiated from the maintenance expense, because the maintenance expense provides for the *return* of the contributory asset. See Exhibit A-7 in Appendix A for an illustrative example of the calculation of the CAC on the assembled workforce.

3.7.03 The application of the MPEEM should not create or destroy value when compared to the entity value. In order to a) accomplish this correct application, b) be consistent with the treatment of net working capital and fixed assets, and c) not double count the “costs” of the contributory assets in the valuation of a subject intangible asset (such as a customer relationship), it is necessary (when significant) in the application of the MPEEM to remove (add back) the growth investment in assembled workforce because it is being replaced with a CAC. The amount added back should be the increase in fair value. Assuming the acquired or current assembled workforce was valued based on pre-tax cost, the amount added back for the growth investment would be the pre-tax amount.

3.7.04 Although this add-back of the growth investment in assembled workforce is uncommon in current practice, in order to be precise, it is an adjustment that is required for the fair value of the total assets (net of non interest-bearing current liabilities) to balance with the entity fair value. The Working Group believes that this adjustment is typically insignificant and therefore unnecessary, but the valuation specialist should be alert for instances in which it is significant.

3.7.05 A further discussion of why this add-back should be calculated on a pre-tax basis is included in Appendix C.

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<sup>10</sup> This section also applies to contributory assets valued using any other approach when the expenditure is viewed as a period expense.



## 4.0 The Stratification of Rates of Return by Asset or Asset Category

### 4.1 Introduction

4.1.01 A basic issue in the application of the MPEEM is what rate of return should be earned by each asset category including contributory assets. The fundamental premise is that the required rate of return should be commensurate with the relative risk associated with investment in each particular asset. However, there is a paucity of authoritative data on asset-specific returns. Therefore, valuation specialists must rely on what market evidence is available combined with judgment and tests of reasonableness based on considerations such as likely financing options. This Section will describe what the Working Group believes to be best practice.

4.1.02 While no specific empirical research or data on asset-specific returns was identified, there is some literature that addresses the topic of asset returns. One of the earlier and most often cited sources is the Internal Revenue Service (“IRS”) Revenue Ruling 68-609. In this ruling, the IRS proposed that there is a hierarchy of returns for classes of assets with returns rising as one moves from fixed assets to intangible assets. Following on this same historical construct, the IPR&D Practice Aid<sup>11</sup> noted the expectation that high risk intangible assets, such as IPR&D projects, would exhibit returns that approached those required by venture capital investors in start-up ventures with the risk declining as the project neared completion (presuming use of the Discount Rate Adjustment Technique, see paragraph 4.2.08). Other references exist that relate to this topic.<sup>12</sup>

4.1.03 One reasonable proxy for risk (and related return) levels for specific assets within an entity is the level of debt financing that could be secured for that asset. The debt capacity for various classes of assets can vary widely over time based on current economic conditions and the availability of capital in the credit markets. Valuation specialists should seek information regarding debt capacity that is relevant to the date of valuation. As an example, Plewa (1985) cites guidelines for general loan to value ratios.<sup>13</sup>

4.1.04 Using relevant market data, valuation specialists can estimate the market participant cost of equity and cost of debt related to financing a particular type of asset. From that the valuation specialist can use market-based debt capacity ratios to develop the required return on specific classes of assets.

<sup>11</sup> AICPA Practice Aid Series, “Assets Acquired in a Business Combination to Be Used in Research and Development Activities: A Focus on Software, Electronic Devices and Pharmaceutical Industries”, 2001, Paragraphs 5.3.87 through 5.3.90.

<sup>12</sup> See for example the following articles:

Gooch, Lawrence B., ASA, “Capital Charges and the Valuation of Intangibles” *Business Valuation Review* March 1992: 5-21.

Asbra, Marc, CFA. “Contributory Asset Charges in the Excess Earnings Method” *Valuation Strategies* March/April 2007: 4-17.

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<sup>13</sup> Plewa, Franklin, Professor of Accounting at Idaho State and George Friedlob, Professor Clemson University, *Understanding Cash Flow*. 1985.

## 4.2 Rate of Return Selection

4.2.01 The concept underlying stratification of rates of return is that the required rate of *return on* a contributory asset should be estimated from market derived data reflecting the relative risk of that asset. The intuitive notion is that the perceived relative riskiness of assets reflects their liquidity/ease of transferability, their ability to be financed by debt or equity, as well as the degree of certainty of realizing future cash flows from the asset. For certain categories of assets, there are sources of data that can be used as support for the appropriate rate of return, such as working capital and fixed (tangible) assets (see following paragraphs regarding these asset types).

4.2.02 The risk profile of each asset category should be considered when estimating the appropriate rates of return. While there are exceptions, the Working Group believes that the risk profile of an entity's assets generally increases as you move down the balance sheet and, accordingly, the type of financing available for the assets shifts from debt to equity as the risk profile increases. For example, low risk assets such as working capital can usually be financed largely with debt and, as such, a short-term borrowing rate such as the prime rate often can be used to estimate the cost of debt component of the return requirement for this asset. On the other hand, the risk profile of intangible assets is often much higher and, as such, these assets are typically financed largely with equity.

4.2.03 Selection of an overall rate of return for the entity (the weighted average cost of capital, or WACC) is a necessary starting point prior to consideration of the stratification of the rates of return. Although it is common that the risk and return associated with the intangible assets of an entity tend to reflect risk and return levels of the overall entity, valuation specialists should be cautioned that "generic" contributory assets may exhibit costs of debt and equity that are independent of the entities that own them and would be more specific to the assets themselves. For example, contributory real estate owned by a high technology entity might not exhibit risk characteristics specific to the high technology industry, but instead would require equity and debt rates of return specific to real estate investments. Conversely, if the subject working capital or fixed assets are very risky or very specific to the entity (which may limit the liquidity of the assets due to the lack of a secondary market), the required *return on* these asset categories may be higher than otherwise indicated and should be based on the required returns for these types of assets prevalent in the industry.

4.2.04 Once the rates of return for the assets or asset categories are determined, they have three uses in the application of the MPEEM: a) application of CACs, b) returns on asset categories in the calculation of the weighted average return on assets ("WARA") (see paragraph 4.3.07), and c) the discount rate used to derive the present value of the cash flows attributable to the subject intangible asset. Additionally, if a discount rate is used to value an intangible asset, the Working Group believes that same rate should be used as the rate of *return on* that asset for CAC purposes and for calculating the WARA. Valuation specialists should take care to ensure that pre-tax rates have been appropriately adjusted to after-tax levels for use in computing after-tax CACs. See Section 4.3 for discussion of WACC and WARA.

4.2.05 *Working Capital* – The required *return on* working capital is typically considered to be at the lower end of returns of most, if not all, other asset classes and is assumed to be equal to the after-tax rate that would be charged to finance working capital. One common approach is to use the bank prime lending rate, adjusted for risk as needed. Another approach is to use rates associated with commercial paper, as these represent financing rates for corporations financing items such as accounts receivable or inventory. Another approach is to use rates associated with 30 to 90 day U.S. Treasury bills with consideration of additional risk factors that might slightly increase the rate of return. As noted earlier, the Working Group believes that these approaches could understate the required return since very few companies are able to borrow 100% of

the value of working capital assets. The Working Group believes that a best practice, if it creates a significant difference, would be to consider the level of debt and equity financing required to fund working capital. When inventory has a limited specific market or when receivables are in a high default industry it may be appropriate to adjust the various reference rates noted in this paragraph to reflect that additional risk.

**4.2.06 Fixed (Tangible) Assets** – The required *return on* fixed (tangible) assets may be estimated through rates of return that market participants would experience to finance similar assets. The rate of return should reflect the relative risk of the specific asset. Examples of rates of *return on* these fixed assets are the calculated after-tax interest rate based on a) observed rates charged by vendor financing, or b) bank debt that would be used to finance the specific fixed asset. If the asset cannot be financed with all debt (which is often the case) then the Working Group believes that use of a blended debt and equity rate would be representative of a best practice. As fixed assets become more risky (such as special purpose assets), it may be appropriate to adjust the various debt rates found in the marketplace.

**4.2.07 Intangible Assets** – The required rate of *return on* identified intangible assets may be estimated through the relative risk of the intangible assets compared to the entity's overall WACC. Typically intangible assets necessitate a higher rate of return than the WACC, due to the riskier and less liquid nature of intangible assets relative to working capital and fixed assets. Identified intangible assets and goodwill, in aggregate, usually have the highest required return of all the asset classes of an entity. Facts and circumstances will dictate the degree to which specific intangible assets require returns that are different from this aggregate asset class return. Circumstances can arise where the required *return on* an intangible asset is at or below the WACC, depending on the relative asset mix in the entity and the specific nature of the intangible assets. Backlog and short lived intangible assets such as a soon to be replaced developed technology are examples of intangible assets for which a lower required return may be appropriate. Since intangible assets are not typically financed with debt but with equity, the required rate of return for intangible assets is often highly correlated with equity rates of return.

**4.2.08 IPR&D Assets** – There is separate guidance related to the valuation of IPR&D assets. As outlined in the IPR&D Practice Aid, asset returns need to be determined based on the stage of completion of the IPR&D project and, in certain industries, will approximate venture capital returns for early stage development companies (to the extent that a discount rate adjustment technique is being used). The valuation specialist should consider the riskiness of the project and the typical returns in the industry, as not all development projects would yield high venture capital-like returns. The IPR&D Practice Aid also discusses FASB Statement of Financial Accounting Concepts No. 7 *Using Cash Flow Information and Present Value in Accounting Measurements* ("CON 7") which provides guidance for using present value techniques in financial accounting. CON 7 describes two theoretical techniques for using present value to estimate fair value. The two theoretical techniques are described in CON 7 (as clarified in FASB ASC Topic 820) can be summarized as:

1. **Discount Rate Adjustment Technique:** This technique uses a single, most likely set of cash flows discounted at a rate which reflects the risk of eventually receiving those cash flows. In this technique the risk is incorporated in the development of the discount rate.
2. **Expected Present Value Technique:** This technique uses a set of cash flows that represents the probability weighted average of discreet scenarios and probabilities that capture the array of possible cash flows. The risk of receiving the cash flows is reflected in the selection of the probability factors and the discount rate used should be reflective of the expected rate of return associated with the probability-weighted cash flows (which may include a "cash risk premium").<sup>14</sup>

<sup>14</sup> FASB ASC paragraphs 820-10-55-4 through 820-10-55-20.

The Working Group notes both techniques may be theoretically acceptable for use in a discounted cash flow (“DCF”) calculation under the MPEEM. However, when the discount rate used for a specific technique is derived in a fashion different from that for the other assets or for the entity as a whole, then diagnostics such as WACC to WARA comparisons may be difficult to apply and interpret (see Section 4.3 for discussion of such diagnostics).

**4.2.09 Goodwill (Excess Purchase Price)<sup>15</sup> and Other Elements of the Entity Not Recognized Separately** – These assets or elements consist generally of those for which future cash flows are expected that are not associated with otherwise separately identified assets. The uncertain nature of these prospective cash flows is commonly viewed as having incrementally more risk than separately identified assets. Therefore, the rate of return appropriate for this class of assets is commonly thought to be greater than that of the separately identified intangible asset with the next highest rate of return. The WARA analysis can be used as a diagnostic by setting the WARA equal to the calculated WACC and solving for the implied rate of *return on goodwill* rather than as a diagnostic that compares the calculated WACC to the calculated WARA. In this fashion, the valuation specialist can gauge the appropriateness of the returns on other assets by comparing them to the implied rate of return on goodwill (see Section 4.3 for additional discussion of these diagnostics).

**4.2.10** While it is often the case that the goodwill component would be expected to earn the highest return, the Working Group believes that there are circumstances where returns on elements of goodwill will approach the calculated WACC. For example, an assembled workforce asset, an element of goodwill, is often assumed to earn a rate of return commensurate with the calculated WACC. The Working Group believes that the rate of return on elements of goodwill, including residual goodwill, will range from being the highest rate of return of all the assets to a rate approaching the calculated WACC. The rate of return on goodwill depends on the relative values of the other (identified) assets, their respective rates of return, and the nature of the risk inherent in the goodwill itself.

### **4.3 Issues Pertaining to WACC, IRR and WARA**

**4.3.01** The WACC is calculated as the *return on the investment* in the subject entity required by market participants, including both debt and equity investments. The WACC, based on the market participant’s views (based on an assessment of guideline companies), includes the cost of equity and the after-tax cost of debt weighted by their respective proportions in the market participant’s long-term view of the capital structure for the subject entity. The WACC that is initially derived from reference to guideline companies might need to be adjusted for specific facts and circumstances surrounding the entity whose assets are to be valued, but only if those facts and circumstances are consistent with long-term market participant views. For example, the subject entity may be smaller or less diversified or have higher cash flow growth than the pool of available guideline companies referenced in developing a market-derived WACC. It is assumed that market participants would reflect these characteristics in their risk assessment and the WACC would need to be adjusted accordingly. As applied to equity returns, such risk premiums are often referred to as being “unsystematic” adjustments. The Working Group’s view, however, is that such risk premiums primarily represent adjustments to systematic risk resulting from a lack of comparability. Either way, judgment must be used regarding adjustments to the WACC for such factors. The Working Group refers readers to existing financial and valuation literature regarding models for developing the appropriate rates of return for equity and debt.

<sup>15</sup> The Working Group recognizes that there is often a difference between the total amount of goodwill recorded as the result of an acquisition and the amount of goodwill (or “excess purchase price”) that the valuation specialist is typically dealing with during the valuation. See paragraph 1.10, item C regarding this issue.

4.3.02 A detailed discussion of the identification of market participants is contained in the text of FASB ASC Topic 820 and is not repeated here. It should be noted that market participants are not always the same as the guideline companies. The Working Group does caution that when performing an MPEEM the valuation specialist must not confuse a market participant's view of the risk of the subject entity with a market participant's own overall risk. Nor should it be assumed that the market participant view of the risk of the subject entity matches the risk of an investment in an identified group of guideline companies before determining that such a group represents a reasonable proxy for the market participant view.

4.3.03 At times, in a transaction, the actual price paid might differ from the fair value of the acquired entity. While the purchase price is often the best indication of fair value, the valuation specialist needs to be alert for circumstances when this is not the case and there is evidence of over payment (if detectable and quantifiable)<sup>16</sup> or under payment (bargain purchase). The following paragraphs elaborate on this issue. The actual price paid is referred to as the "purchase price," where necessary, to differentiate it from the fair value of the acquired entity.

4.3.04 An implied internal rate of return ("IRR"), simply stated, is the compounded rate of return indicated to be earned on an investment. It is the rate that equates the amount or value of an investment and the present value of the cash flows assumed to be earned on that investment. For the purposes of this document, the IRR in a transaction is the discount rate at which the present value of the PFI of the acquired entity (adjusted if necessary for market participant assumptions) is equal to the purchase price (adjusted if necessary as noted in paragraph 4.3.03). Because of potential adjustments to the purchase price and to the PFI, the valuation specialist's IRR may not be consistent with management's internal assumptions.

4.3.05 The IRR for an acquisition (based on an adjusted PFI and/or adjusted purchase price, when necessary) should be compared for consistency to the WACC which is derived based on views of market participants. Both the WACC and IRR should reasonably reflect the perceived risk of achieving the PFI (adjusted if necessary for market participant assumptions). An IRR that is significantly different from the WACC may require a reassessment of the purchase price (actual or adjusted), the PFI, and the WACC (see paragraph 4.3.11 for further discussion).

4.3.06 Calculation of an IRR is relatively straightforward in an acquisition scenario. In other types of valuations when there is no purchase price to serve as a starting point, if the fair value of the entity is determined using multiple valuation methods, an IRR may be calculated using the PFI and the concluded fair value of the entity based on reconciliation of the valuation methods.

4.3.07 With the reconciliation of the WACC and IRR complete and the stratification of rates of return for the assets established, the Working Group believes that best practice would indicate an analysis of the WARA. In essence, the comparison of the WACC to the WARA is a diagnostic that assists the valuation specialist in reconciling the rates of return required by providers of capital (the WACC) with rates of return earned by various classes of assets (the WARA). Thus, the WARA calculation assists in assessing the reasonableness of the asset-specific returns for identified intangible assets and the implied (or calculated) *return on goodwill*.<sup>17</sup> The WARA is calculated as the sum of the required rates of return for normalized working capital, fixed assets, and intangible assets, weighted by each asset's proportionate share of the total value of the entity (where "total value of the entity" means the combined value of debt and equity investment required in the subject entity adjusted to reflect a

<sup>16</sup> Note that the original text of FASB Statement No. 141(R), Paragraph B382 indicates that, due to problems of identifying and reliably measuring an overpayment at the acquisition date, overpayments are best addressed through subsequent impairment testing.

<sup>17</sup> Refer to Toolkit for alternative reconciliation calculations.

taxable purchase – see paragraph 4.3.08). A WARA that remains significantly different from the WACC may require a reassessment of both the asset values (or levels of assets) and the assumed returns on those assets to determine if they represent market participant assumptions.

4.3.08 The Working Group also notes that many transactions are “non-taxable” and management’s PFI may not reflect the tax benefit (of amortization or depreciation) implicit in the fair value of underlying assets. In a business combination structured as a taxable purchase, the PFI and purchase price are likely to reflect the tax benefits. However, in the case of a deal structured as a non-taxable purchase, the Working Group recommends temporarily adjusting the purchase price for use in the WARA analysis. Because the individual asset values include the tax benefit of amortization and increased depreciation, the entity value must also be increased for comparison purposes. The Working Group believes the most straightforward adjustment technique is to calculate the additional tax benefit as if the deal had been structured as a taxable purchase and add it to the purchase price (see Exhibit A-10 in the Comprehensive Example). This adjustment would be necessary to ensure consistency in the WARA analysis, since the fair values of depreciable/amortizable assets would incorporate a proportional share of the tax benefit regardless of the structure of the deal itself (see paragraph 3.1.08).

4.3.09 When performing the WARA calculation, it is important to remember that the asset values used to calculate the WARA need to represent normal operating levels required to sustain the value of the entity. In other words, all non-operating assets and liabilities are excluded from the WARA calculation (both from the individual assets included and from the purchase price used in the calculation). For example, a non-operating asset such as excess cash is excluded, and the WARA calculation reflects only normal levels of working capital for the entity (based on market participant perspectives).

4.3.10 The WACC, WARA, and IRR (fully adjusted) all should be calculated and, when applicable, compared and contrasted when using the MPEEM as discussed previously. The Working Group believes that the starting point for an analysis would be the derived market-based WACC for the acquired (or subject) entity. As stated above, this WACC is based on market participant assumptions specific to the entity’s cash flows. One diagnostic test would be to compare the WACC to the IRR and reconcile any differences. Another diagnostic test would be to compare the WACC/IRR to the WARA to assess the reasonableness of the stratification of rates of return (as discussed in Section 4.2).

4.3.11 When the WACC, WARA and IRR do not easily reconcile, the valuation specialist will need to review the assumptions in the PFI to determine if they reflect market participant assumptions or if they may have acquirer-specific synergies or other assumptions imbedded in the projections. If the PFI is determined to reflect market participant assumptions, and no acquirer-specific synergies are included, and the WACC, WARA and IRR still do not reconcile, the Working Group recommends that the valuation specialist undertake additional procedures. These would include, but are not limited to, the performance of sensitivity analyses, the rechecking of inputs to both PFI and to WACC calculations, and the undertaking of a search for qualitative factors that would support the existence of either over-payments or bargain purchase conditions.

## 5.0 Summary

5.1 Intangible assets are often valued using an income approach. Within the income approach, the MPEEM has arisen as a commonly applied methodology in the valuation of intangible assets.

5.2 The MPEEM is an attribution model in which a stream of revenue and expenses are associated with a particular group of assets that are all necessary to support earnings associated with a particular subject intangible asset. The assets in this group other than the subject intangible asset are considered contributory assets. Through application of the MPEEM, earnings attributable to the contributory assets (in the form of *returns on*, and sometimes *returns of*, those assets) are deducted from the earnings stream so that what remains are the excess earnings attributable to the subject intangible asset. The excess earnings are discounted to present value to derive the fair value of the subject intangible asset. All assumptions required in application of the MPEEM are to reflect market participant assumptions.

5.3 Contributory assets are defined as assets that are used in conjunction with the subject intangible asset in the realization of prospective cash flows associated with the subject intangible asset. Assets that do not contribute to the prospective cash flows associated with the subject intangible asset are not contributory assets.

5.4 The types of asset categories required to support the cash flows associated with a subject intangible asset are based on the facts and circumstances of the entity and the subject intangible asset (from a market participant perspective) and may be the components of working capital, fixed (tangible) assets, and/or intangible assets. Care must be taken in determining which assets are contributory assets, what level of those contributory assets would be considered necessary to support the earnings associated with the subject intangible asset, and how that level might change over time, all from the perspective of market participants.

5.5 Once the level of contributory assets is determined, charges for the use of those assets by the subject intangible asset, or *returns on* those contributory assets (CACs), must be determined. Rates of return on the various contributory assets (and the resulting CACs) generally reflect the relative riskiness of those assets. In the end, the WACC, IRR, and WARA must be reconciled.

5.6 The application of CACs is essentially an allocation of earnings to the contributory assets. As such, the methodology applied should result in approximately the same aggregate earnings and asset values. The application of CACs, as either an earnings allocation or an economic charge, should not create or destroy value.

5.7 Many implementation issues arise in identifying contributory assets, calculating CACs, and associating rates of return with particular assets. This document seeks to highlight these issues and set forth the Working Group's view of best practices. The Working Group notes that professional judgment is necessary in the valuation of any asset and that the purpose of this document is to assist in reducing diversity of practice in the specific topics addressed by the Monograph. It is the goal of the Working Group that the guidance set forth in this Monograph, combined with the application of professional judgment, will result in measurements of fair value that represent the highest level of professional practice and that are consistent with the goals of fair value measurement for financial reporting.

## 6.0 List of Acronyms Used

CAC	Contributory Asset Charge
EBIT	Earnings Before Interest & Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation & Amortization
IPR&D	In-Process Research & Development
IRR	Implied Internal Rate of Return
IRS	Internal Revenue Service
MPEEM	Multi-Period Excess Earnings Method
PFI	Prospective Financial Information
ROI	Return on Investment
RUL	Remaining Useful Life
WACC	Weighted Average Cost of Capital
WARA	Weighted Average Rate of Return on Assets



## 7.0 References

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

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## 8.0 Glossary

### 8.1 Glossary of Terms

#### **Business Enterprise**

A commercial, industrial, service, or investment entity (or combination thereof) pursuing an economic activity.

[Source: International Glossary of Business Valuation Terms]

#### **Capital Charge**

A fair return on an entity's *contributory assets*, which are tangible and intangible assets used in the production of income or cash flow associated with an intangible asset being valued. In this context, *income or cash flow* refers to an applicable measure of income or cash flow, such as net income, or operating cash flow before taxes and capital expenditures. A capital charge may be expressed as a percentage return on [sic]<sup>18</sup> an economic rent associated with, or a profit split related to, the contributory assets.

[Source: AICPA Statement on Standards for Valuation Services, Appendix C, Glossary of Additional Terms]

#### **Contributory Asset Charge (CAC)**

See Capital Charge.

#### **Cost Approach**

A general way of determining a value indication of an individual asset by quantifying the amount of money required to replace the future service capability of that asset.

[Source: International Glossary of Business Valuation Terms]

#### **Discount Rate Adjustment Technique**

The discount rate adjustment technique uses a single set of cash flows from the range of possible estimated amounts, whether contractual or promised (as is the case for a bond) or most likely cash flows. In all cases, those cash flows are conditional upon the occurrence of specified events (for example, contractual or promised cash flows for a bond are conditional on the event of no default by the debtor). The discount rate used in the discount rate adjustment technique is derived from observed rates of return for comparable assets or liabilities that are traded in the market. Accordingly, the contractual, promised, or most likely cash flows are discounted at a rate that corresponds to an observed market rate associated with such conditional cash flows (market rate of return).

[Source: FASB ASC paragraphs 820-10-55-4 through 820-10-55-20 (Formerly Statement of Financial Accounting Standards No. 157, Appendix B)]

#### **Economic Life**

The period of time over which property may generate economic benefits.

[Source: International Glossary of Business Valuation Terms]

<sup>18</sup> The word "or" would be more appropriate.

**Fair Value (FV)**

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

[Source: Financial Accounting Standards Board *Accounting Standards Codification Topic 820, Fair Value Measurements* (formerly Statement of Financial Accounting Standards No. 157)]

**Fixed Asset**

Assets with a physical manifestation. Examples include land and buildings, plant and machinery, fixtures and fittings, tools and equipment, and assets in the course of construction and development.

[Source: International Valuation Standards, 7th Ed]

**Goodwill**

An asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized.

[Source: Financial Accounting Standards Board *Accounting Standards Codification Topic 805, Business Combinations* (formerly Statement of Financial Accounting Standards No. 141 (Revised 2007))]

**Going Concern**

An ongoing operating business enterprise.

[Source: International Glossary of Business Valuation Terms]

**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.

[Source: AICPA Practice Aid – *Assets Acquired in a Business Combination to Be Used in Research and Development Activities: A Focus on Software, Electronic Devices, and Pharmaceutical Industries*, 2001, Appendix A, Glossary of Terms]

**Income (Income-Based) Approach**

A general way of determining a value indication of a business, business ownership interest, security, or intangible asset using one or more methods that convert anticipated economic benefits into a present single amount.

[Source: International Glossary of Business Valuation Terms]

**Intangible Assets**

Nonphysical assets such as franchises, trademarks, patents, copyrights, goodwill, equities, mineral rights, securities and contracts (as distinguished from physical assets), that grant rights and privileges, and have value for the owner.

[Source: International Glossary of Business Valuation Terms]

**Internal Rate of Return (IRR)**

A discount rate at which the present value of the future cash flows of the investment equals the cost of the investment.

[Source: International Glossary of Business Valuation Terms]

**Invested Capital**

The sum of equity and debt in a Business Enterprise. Debt is typically a) all interest bearing debt or b) long-term interest-bearing debt. When the term is used, it should be supplemented by a specific definition in the given valuation context.

[Source: International Glossary of Business Valuation Terms]

**Market Participant**

Market participants are buyers and sellers in the principal (or most advantageous) market for the asset or liability that are:

- a. Independent of the reporting entity; that is, they are not related parties
- b. Knowledgeable, having a reasonable understanding about the asset or liability and the transaction based on all available information, including information that might be obtained through due diligence efforts that are usual and customary
- c. Able to transact for the asset or liability
- d. Willing to transact for the asset or liability; that is, they are motivated but not forced or otherwise compelled to do so.

[Source: Financial Accounting Standards Board *Accounting Standards Codification Topic 820, Fair Value Measurements* (formerly Statement of Financial Accounting Standards No. 157)]

**Market (Market-Based) Approach**

A general way of determining a value indication of a business, business ownership interest, security, or intangible asset by using one or more methods that compare the subject to similar businesses, business ownership interests, securities, or intangible assets that have been sold.

[Source: International Glossary of Business Valuation Terms]

**Multi-Period Excess Earnings Method (MPEEM)**

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.

[Source: AICPA Practice Aid – *Assets Acquired in a Business Combination to Be Used in Research and Development Activities: A Focus on Software, Electronic Devices, and Pharmaceutical Industries*, 2001, Appendix A, Glossary of Terms]

**Prospective Financial Information (PFI)**

A forecast of expected future cash flows.

[Source: AICPA Practice Aid – *Assets Acquired in a Business Combination to Be Used in Research and Development Activities: A Focus on Software, Electronic Devices, and Pharmaceutical Industries*, 2001, paragraph 5.2.07]

**Rate of Return**

An amount of income (loss) and/or change in value realized or anticipated on an investment, expressed as a percentage of that investment  
[Source: International Glossary of Business Valuation Terms]

**Relief From Royalty Method**

A valuation method used to value certain intangible assets (for example, trademarks and trade names) based on the premise that the only value that a purchaser of the assets receives is the exemption from paying a royalty for its use. Application of this method usually involves estimating the fair market value of an intangible asset by quantifying the present value of the stream of market-derived royalty payments that the owner of the intangible asset is exempted from or “relieved” from paying.

[Source: AICPA Statement on Standards for Valuation Services, Appendix C, Glossary of Additional Terms]

**Weighted Average Cost of Capital (WACC)**

The cost of capital (discount rate) determined by the weighted average, at market value, of the cost of all financing sources in the business enterprise’s capital structure.

[Source: International Glossary of Business Valuation Terms]

**8.2 Glossary of Entities Referred to in Document****American Institute of Certified Public Accountants (AICPA)**

The national, professional organization for Certified Public Accountants in the US. Provides members with resources, information, certification, and licensing. Established in 1887.

[Source: Derived from the AICPA’s website, [www.aicpa.org](http://www.aicpa.org)]

**Financial Accounting Standards Board (FASB)**

The designated organization in the private sector for establishing standards of financial accounting and reporting. Those standards govern the preparation of financial reports and are officially recognized as authoritative by the SEC and AICPA.

[Source: Derived from the FASB’s website, [www.fasb.org](http://www.fasb.org)]

**Internal Revenue Service (IRS)**

A bureau of the Department of the Treasury organized to carry out the responsibilities of the secretary of the Treasury to enforce the internal revenue laws.

[Source: Derived from the IRS’s website, [www.irs.gov](http://www.irs.gov)]

## Appendix A: Comprehensive Example

The Working Group prepared this comprehensive example to further illustrate the concepts and best practices introduced in the discussion document.

### Comprehensive Example

**IMPORTANT NOTE:** These sample calculations are for demonstration purposes only and are not intended as the only form of model or calculation, or final report exhibit, that is acceptable. In some cases, these calculations include details to demonstrate a point made in the Monograph and would not be expected in a typical analysis.

This Comprehensive Example demonstrates the concepts put forth in this document and applies them in a comprehensive manner to derive the fair value of customer relationships (as a sample asset) based on the application of the MPEEM. The contributory assets included in this example are as follows:

- Working Capital
- Fixed Assets (Techniques A&B)
- Assembled Workforce
- Trade Name\*
- Intellectual Property\*

\*These assets contribute to the revenue stream used in valuation of the customer relationships. However, because they are valued by use of the relief from royalty method, this is considered a profit split and contributory asset charges are not applied.

The required rate of return on each asset should be commensurate with the relative risk associated with investment in that particular asset. For additional discussion, refer to Section 4 of the Monograph.

Exhibit A-1: Entity Value

Exhibit A-2: Tax Depreciation: 7-Year MACRS & Fair Value of Fixed Assets

Exhibit A-3: Adjusted PFI and Entity Value

Exhibit A-4: Working Capital: Incremental Needs and Contributory Asset Charge

Exhibit A-5: Fixed Assets: Contributory Asset Charge Based on Technique A - Average Annual Balance

Exhibit A-6: Fixed Assets: Contributory Asset Charge Based on Technique B - Level Payment

Exhibit A-7: Assembled Workforce: Growth Investment and Contributory Asset Charge

Exhibit A-8: Customer Relationships MPEEM: Fixed Asset Contributory Asset Charge Based on Technique A - Average Annual Balance

Exhibit A-9: Customer Relationships MPEEM: Fixed Asset Contributory Asset Charge Based on Technique B - Level Payment

Exhibit A-10: Weighted Average Return on Assets (WARA)

## Acronyms

The following acronyms are used in the Appendices:

AWF	Assembled Workforce
DFCF	Debt Free Cash Flow
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortization
FV	Fair Value
IP	Intellectual Property
IRR	Implied Internal Rate of Return
IRS	Internal Revenue Service
PFI	Prospective Financial Information
PV	Present Value
R&D	Research and Development
TAB	Tax Amortization Benefit
WACC	Weighted Average Cost of Capital



Entity Value (1)

Exhibit A-1

This example assumes that all potential entity-specific synergies and related value have been extracted from the PFI and the purchase price. Based on the market participant PFI and purchase price of \$4,746, the IRR of the transaction is calculated to be 10%. In addition, a market-based WACC of 10% is estimated, which reconciles to the IRR. This example reflects a non-taxable transaction.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
Revenue		\$ 1,000	\$ 1,050	\$ 1,165	\$ 1,306	\$ 1,456	\$ 1,596	\$ 1,718	\$ 1,823	\$ 1,907	\$ 1,976	\$ 2,035
Gross Profit	90%	900	945	1,049	1,175	1,310	1,436	1,546	1,641	1,716	1,778	1,832
Operating Expenses:												
Maintenance R&D (2)	0.5%	5	5	6	7	7	8	9	9	10	10	10
R&D - Future IP (3)	2.5%	25	26	29	33	36	40	43	46	48	49	51
Trade name advertising (4)	0.5%	5	5	6	7	7	8	9	9	10	10	10
Current customer marketing (5)	3%	27	26	23	18	13	8	4	2	1	-	-
Future customer marketing (6)		18	22	29	40	53	64	73	80	84	89	92
Total marketing	5%	50	53	58	65	73	80	86	91	95	99	102
Total G&A	7%	70	74	82	91	102	112	120	128	133	138	142
Total Operating Expenses	15%	150	158	175	196	218	240	258	274	286	296	305
EBITDA		750	787	874	979	1,092	1,196	1,288	1,367	1,430	1,482	1,527
Depreciation (7)		286	302	337	377	412	451	478	513	540	562	581
Amortization (8)		-	-	-	-	-	-	-	-	-	-	-
EBIT		464	485	537	602	680	745	810	854	890	920	946
Taxes	40%	186	194	215	241	272	298	324	342	356	368	378
Debt Free Net Income		278	291	322	361	408	447	486	512	534	552	568
less: Incremental Working Capital (9)	30%	15	15	35	42	45	42	37	32	25	21	18
add: Depreciation (10)		286	302	337	377	412	451	478	513	540	562	581
less: Capital Expenditures		286	400	450	500	525	541	557	574	591	609	627
Debt Free Cash Flow		263	178	174	196	250	315	370	419	458	484	504
Residual Value (11)												7,200
PV Factor (12)	10%	0.9535	0.8668	0.7880	0.7164	0.6512	0.5920	0.5382	0.4893	0.4448	0.4044	0.4044
PV DFCF		251	154	137	140	163	186	199	205	204	196	2,911
<b>Entity Value</b>		<b>4,746</b>										

- (1) Entity Value projections based on market participant assumptions. Excludes entity-specific synergies.
- (2) Maintenance R&D applicable to both current and future IP.
- (3) R&D expense for the development of future IP.
- (4) Advertising expense related to the trade name.
- (5) Maintenance marketing expenses specific to current recognizable customer relationships with following revenue (Exhibit A-8 footnote 1):
- |                               | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| Customer relationship revenue | 900    | 855    | 770    | 616    | 431    | 259    | 130    | 65     | 33     | -       |
- (6) Marketing expenses related to creating and maintaining unrecognized and future customer relationships.
- (7) 7-MACRS tax depreciation based on carry-over tax basis of \$745 and projected capital expenditures. For a detailed calculation see Exhibit A-2 of the Toolkit.
- (8) Tax basis of intangible assets is zero.
- (9) Represents 30% of incremental revenue. A beginning working capital balance of \$285 is based on Year 0 revenue of \$950.
- (10) The residual year difference in depreciation and capital expenditures recognizes the long term growth in the business and the depreciation lag relative to capital expenditures.
- (11) Based on constant growth model assuming a 3% long-term growth rate.
- (12) The market participant based IRR is equivalent to the WACC of 10%. The mid-period convention is applied.

## Tax Depreciation: 7-Year MACRS &amp; Fair Value of Fixed Assets (1)

Exhibit A-2

This exhibit summarizes the tax depreciation calculations based on the \$1,000 fair value of the fixed assets and 7-year MACRS depreciation. Because CACs related to fixed assets are based on their fair value (which includes the tax benefit of depreciation), the depreciation reflected in the PFI is restated to reflect the fair value of the fixed assets. These projected depreciation amounts are reflected in Exhibit A-3.

<b>Depreciation Of:</b>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>	<u>Residual</u>
FV of Acquired or Current Fixed Assets	\$ 143	\$ 245	\$ 175	\$ 125	\$ 89	\$ 89	\$ 89	\$ 45			
Capital Expenditures	41	127	212	287	352	411	468	513	540	562	581
Total Tax Depreciation	184	372	387	412	441	500	557	558	540	562	581

(1) 7-Year MACRS applied to the fair value of the fixed assets and projected capital expenditures.

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>
MACRS Percentages	14.29%	24.49%	17.49%	12.49%	8.93%	8.92%	8.93%	4.46%

## Adjusted PFI and Entity Value

Exhibit A-3

The PFI in this Exhibit is adjusted to reflect the tax benefits that would result from a restatement of the tax basis of certain of the assets to fair value. The tax benefit inherent in the fair value of an asset is not reflected in the PFI of a non-taxable transaction. For example, the step-up in fixed assets or the fair value of an assembled workforce are not reflected in the entity's tax basis and the PFI for the transaction excludes this benefit. In order to maintain consistency between the PFI to be used in valuing the customer relationships and the fair value of the assets to which a CAC will be applied, the PFI should be adjusted to include the cash flow benefits of the increase in the tax basis of the contributory assets. The Working Group believes that the fair value of an intangible asset should not differ depending on the tax structure of a particular transaction. For additional discussion on the applicability of TABs see paragraphs 3.1.08 and 4.3.08 in this Monograph and paragraphs 5.3.9 - 5.3.108 in the 2001 AICPA IPR&D Practice Aid.

When the PFI is adjusted to include the additional cash flow benefit embedded in the fair value of the contributory assets, this results in an Adjusted Entity Value that is greater than the Entity Value by an amount equal to the present value of the tax benefits related to the increase in tax basis. The Entity Value is recalculated at the WACC/IRR of 10% to arrive at the Adjusted Entity Value of \$4,855. This increase of \$109 is equivalent to the present value of the incremental tax benefit related to the step-up in the fixed assets and the assembled workforce. This Adjusted Entity Value is used only for reconciliation at this phase of the analysis.

The Working Group recognizes that these adjustments might not be significant to the analysis and may be excluded based on the judgment of the valuation specialist.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
Revenue		\$ 1,000	\$ 1,050	\$ 1,165	\$ 1,306	\$ 1,456	\$ 1,596	\$ 1,718	\$ 1,823	\$ 1,907	\$ 1,976	\$ 2,035
Gross Profit	90%	900	945	1,049	1,175	1,310	1,436	1,546	1,641	1,716	1,778	1,832
Operating Expenses:												
Maintenance R&D	0.5%	5	5	6	7	7	8	9	9	10	10	10
R&D - Future IP	2.5%	25	26	29	33	36	40	43	46	48	49	51
Trade name advertising	0.5%	5	5	6	7	7	8	9	9	10	10	10
Current customer marketing	3%	27	26	23	18	13	8	4	2	1	-	-
Future customer marketing		18	22	29	40	53	64	73	80	84	89	92
Total marketing	5%	50	53	58	65	73	80	86	91	95	99	102
Total G&A	7%	70	74	82	91	102	112	120	128	133	138	142
Total Operating Expenses	15%	150	158	175	196	218	240	258	274	286	296	305
EBITDA		750	787	874	979	1,092	1,196	1,288	1,367	1,430	1,482	1,527
Depreciation (1)		184	372	387	412	441	500	557	558	540	562	581
Amortization - AWF (2)		20	20	20	20	20	20	20	20	20	20	-
EBIT		546	395	467	547	631	676	711	789	870	900	946
Taxes	40%	218	158	187	219	252	270	284	316	348	360	378
Debt Free Net Income		328	237	280	328	379	406	427	473	522	540	568
less: Incremental Working Capital	30%	15	15	35	42	45	42	37	32	25	21	18
add: Depreciation (1)		184	372	387	412	441	500	557	558	540	562	581
Amortization - AWF (2)		20	20	20	20	20	20	20	20	20	20	-
less: Capital Expenditures		286	400	450	500	525	541	557	574	591	609	627
Debt Free Cash Flow		231	214	202	218	270	343	410	445	466	492	504
Residual Value												7,200
PV Factor (3)	10%	0.9535	0.8668	0.7880	0.7164	0.6512	0.5920	0.5382	0.4893	0.4448	0.4044	0.4044
PV DFCF		220	185	159	156	176	203	221	218	207	199	2,911
<b>Adjusted Entity Value (4)</b>		<b>4,855</b>										

(1) Tax depreciation pursuant to Exhibit A-2 to reflect the fair value of the fixed assets.

(2) Reflects the amortization of the AWF. For purposes of this example the amortization period for the AWF is assumed to be 10 years rather than 15 years as is required in the U.S. under IRS Code Section 197. 10 years is applied for demonstration purposes as the projections presented are 10 years in length. Tax benefits related to the future replacement of, or increase in, the AWF are reflected in the operating expenses and no adjustment is required other than for the initial fair value.

(3) The WACC remains at 10%.

(4) The Adjusted Entity Value increase over the Entity Value is due solely to the incremental tax benefits. This Adjusted Entity Value is used only for reconciliation purposes.

## Working Capital: Incremental Needs and Contributory Asset Charge

Exhibit A-4

The annual average balance of working capital, consistent with assumptions reflected in Exhibits A-1 and A-3, is calculated and an assumed 3% rate of return on working capital is applied to arrive at the annual CAC (see Section 3 in the Monograph). Working capital used in this analysis excludes non-operating cash and all interest-bearing debt.

The Working Group recognizes that under circumstances where working capital correlates directly with revenue (as is the case below), discrete annual calculations may not be required (see the Practical Expedient). However, in those circumstances where the relationship between working capital and revenue is projected to change significantly (e.g., reduced days receivable), the discrete annual analysis would be considered a best practice. The need to calculate discrete annual working capital CAC assumptions would be based on the judgment of the valuation specialist.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual	
Revenue	\$ 950	\$ 1,000	\$ 1,050	\$ 1,165	\$ 1,306	\$ 1,456	\$ 1,596	\$ 1,718	\$ 1,823	\$ 1,907	\$ 1,976	\$ 2,035
Beginning Balance Working Capital	285	300	315	350	392	437	479	516	548	573	594	594
add: Incremental Working Capital	30% 15	15	35	42	45	42	37	32	25	21	18	18
Ending Balance Working Capital	300	315	350	392	437	479	516	548	573	594	612	612
Average Balance	293	308	333	371	415	458	498	532	561	584	603	603
Mid-period Adjustment Factor (1)	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535
Return On (2)	3%	8	9	10	11	12	13	14	15	16	17	17
Percent of Revenue	0.84%	0.84%	0.82%	0.81%	0.81%	0.82%	0.83%	0.83%	0.84%	0.84%	0.85%	0.85%

(1) The mid-period adjustment is a simplifying adjustment applied to the *return on* to reflect the changing level of the contributory assets over the year. A further discussion of this adjustment is provided in the Toolkit. Note: This calculation does not affect the mid-period discounting convention applied to derive present value elsewhere. The Working Group recognizes that this adjustment is generally minor and its application is based on the judgment of the valuation specialist.

(2) The 3% after-tax return (CAC) is based on market participant assumptions.

**Fixed Assets: Contributory Asset Charge Based on Technique A - Average Annual Balance**

**Exhibit A-5**

The annual average balance of the fixed assets, consistent with the Adjusted Entity Value projections and the fair value of the fixed assets, is calculated and an assumed 5% after-tax rate of return on fixed assets is applied to arrive at the annual CAC (see paragraph 3.4.06, Technique A). The *return of* and *on* the acquired or current and future fixed assets is based on an 8-year straight-line remaining economic useful life in accordance with Technique A "Average Annual Balance."

The Working Group recognizes that under circumstances where the fixed asset CAC as a percent of revenue would remain relatively stable (as is the case below) discrete annual calculations may not be required. However, in those circumstances where the fixed asset CAC as a percent of revenue is projected to change (e.g., increasing asset utilization) then the discrete annual analysis would be considered a best practice. The significance of this assumption would be based on the judgment of the valuation specialist.

<b>Return Of:</b>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>	<u>Residual</u>
FV of Acquired or Current Fixed Assets (1)	\$ 250	\$ 214	\$ 179	\$ 143	\$ 107	\$ 71	\$ 36	\$ -	\$ -	\$ -	
<b>Capital Expenditures (2):</b>											
Year 1	36	36	36	36	36	36	36	36	-	-	-
Year 2		50	50	50	50	50	50	50	50	-	-
Year 3			56	56	56	56	56	56	56	56	-
Year 4				63	63	63	63	63	63	63	63
Year 5					66	66	66	66	66	66	66
Year 6						68	68	68	68	68	68
Year 7							70	70	70	70	70
Year 8								72	72	72	72
Year 9									74	74	74
Year 10										76	76
Residual											78
<b>Total Return Of</b>	<b>286</b>	<b>300</b>	<b>321</b>	<b>348</b>	<b>378</b>	<b>410</b>	<b>445</b>	<b>481</b>	<b>519</b>	<b>545</b>	<b>567</b>
<b>Percent of Revenue</b>	<b>28.6%</b>	<b>28.6%</b>	<b>27.6%</b>	<b>26.6%</b>	<b>26.0%</b>	<b>25.7%</b>	<b>25.9%</b>	<b>26.4%</b>	<b>27.2%</b>	<b>27.6%</b>	<b>27.9%</b>
<b>Return On:</b>											
Beginning Balance	1,000	1,000	1,100	1,229	1,381	1,528	1,659	1,771	1,864	1,936	2,000
add: Capital Expenditures	286	400	450	500	525	541	557	574	591	609	627
less: Return Of	286	300	321	348	378	410	445	481	519	545	567
Ending Balance	1,000	1,100	1,229	1,381	1,528	1,659	1,771	1,864	1,936	2,000	2,060
<b>Average Fixed Assets</b>	<b>1,000</b>	<b>1,050</b>	<b>1,165</b>	<b>1,305</b>	<b>1,455</b>	<b>1,594</b>	<b>1,715</b>	<b>1,818</b>	<b>1,900</b>	<b>1,968</b>	<b>2,030</b>
<b>Mid-period Adjustment Factor</b>	<b>0.9535</b>	<b>0.9535</b>	<b>0.9535</b>	<b>0.9535</b>	<b>0.9535</b>	<b>0.9535</b>	<b>0.9535</b>	<b>0.9535</b>	<b>0.9535</b>	<b>0.9535</b>	<b>0.9535</b>
<b>Return On</b>	<b>5%</b>	<b>48</b>	<b>50</b>	<b>56</b>	<b>62</b>	<b>69</b>	<b>76</b>	<b>82</b>	<b>87</b>	<b>91</b>	<b>94</b>
<b>Percent of Revenue</b>	<b>4.8%</b>	<b>4.8%</b>	<b>4.8%</b>	<b>4.7%</b>	<b>4.7%</b>	<b>4.8%</b>	<b>4.8%</b>	<b>4.8%</b>	<b>4.8%</b>	<b>4.8%</b>	<b>4.8%</b>
<b>Total Return Of &amp; On as Percent of Revenue</b>	<b>33%</b>	<b>33%</b>	<b>32%</b>	<b>31%</b>	<b>31%</b>	<b>30%</b>	<b>31%</b>	<b>31%</b>	<b>32%</b>	<b>32%</b>	<b>33%</b>

(1) The economic depreciation (*return of*) of the acquired or current fixed assets is based on the fair value of the fixed assets of \$1,000 as follows:

<u>Remaining Economic Life (Years)</u>	<u>FV</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>
1	35.7	35.7						
2	71.4	35.7	35.7					
3	107.1	35.7	35.7	35.7				
4	142.9	35.7	35.7	35.7	35.7			
5	178.6	35.7	35.7	35.7	35.7	35.7		
6	214.3	35.7	35.7	35.7	35.7	35.7	35.7	
7	250.0	35.7	35.7	35.7	35.7	35.7	35.7	35.7
Total (rounded)	1,000	250	214	179	143	107	71	36

(2) Based on an 8-year economic life with the first year's *return on* occurring in the year of purchase.

## Fixed Assets: Contributory Asset Charge Based on Technique B - Level Payment

Exhibit A-6

In Technique B, the CAC reflects both the *return of* and *on* and is calculated as a series of level annual payments based on an assumed 5% after-tax rate of return on fixed assets (see paragraph 3.4.10, Technique B). In this exhibit, the CAC is calculated as a "loan payment" at the after-tax rate of return, or interest rate (with the loan payment conceptually including both principle and interest). The calculation incorporates the fair value of the fixed assets and the remaining useful life for each asset group (waterfall payment) and assumes an 8-year remaining useful life for capital expenditures in each year, consistent with the Adjusted Entity Value projections and the fair value of the fixed assets.

The Working Group recognizes that under circumstances where the fixed asset CAC as a percent of revenue would remain relatively stable (as is the case below) discrete annual calculations may not be required. However, in those circumstances where the fixed asset CAC as a percent of revenue is projected to change (e.g., increasing asset utilization) then the discrete annual analysis would be considered a best practice. The significance of this assumption would be based on the judgment of the valuation specialist.

Return On and Of:	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
FV of Acquired or Current Fixed Assets (1)											
1-year	37										
2-years	38	38									
3-years	39	39	39								
4-years (2)	40	40	40	40							
5-years	41	41	41	41	41						
6-years	42	42	42	42	42	42					
7-years	43	43	43	43	43	43	43				
8-years	-	-	-	-	-	-	-	-	-		
Capital Expenditures (3):											
Year 1 (4)	42	42	42	42	42	42	42	42	-	-	-
Year 2		59	59	59	59	59	59	59	59	-	-
Year 3			66	66	66	66	66	66	66	66	-
Year 4				74	74	74	74	74	74	74	74
Year 5					77	77	77	77	77	77	77
Year 6						80	80	80	80	80	80
Year 7							82	82	82	82	82
Year 8								85	85	85	85
Year 9									87	87	87
Year 10										90	90
Residual											92
<b>Total Return On &amp; Of</b>	<b>324</b>	<b>346</b>	<b>373</b>	<b>408</b>	<b>445</b>	<b>483</b>	<b>523</b>	<b>565</b>	<b>610</b>	<b>641</b>	<b>667</b>
% of Revenue	32%	33%	32%	31%	31%	30%	30%	31%	32%	32%	33%

(1) The level payment related to the acquired or current fixed assets is based on the fair value of the fixed assets of \$1,000 with an equal distribution of original cost over the prior 8 years, similar to Exhibit A-5. This waterfall calculation reflects individual level payment calculations for each asset life group.

(2) Sample calculation of the level payment for the acquired fixed assets with a remaining useful life of 4 years is as follows:

$$\begin{aligned} \text{CAC} &= -\text{PMT}(\text{After-Tax Rate of Return}, \text{RUL}, \text{Fair Value}, \text{Future Value}, \text{Type} = \text{beginning of period}) \times (1 + \text{Discount Rate})^{\text{RUL}} \\ &= -\text{PMT}(5\%, 4, 143, 0, 1) \times (1 + 10\%)^4 = 40 \end{aligned}$$

(3) Individual level payment calculations for annual capital expenditures.

(4) Sample calculation of the level payment for the \$286 of capital expenditures occurring in Year 1 with a remaining useful life of 8 years is as follows:

$$\begin{aligned} \text{CAC} &= -\text{PMT}(\text{After-Tax Rate of Return}, \text{RUL}, \text{Fair Value}, \text{Future Value}, \text{Type} = \text{beginning of period}) \\ &= -\text{PMT}(5\%, 8, 286, 0, 1) = 42 \end{aligned}$$

**Assembled Workforce: Growth Investment and Contributory Asset Charge**

**Exhibit A-7**

This exhibit calculates the growth investment in AWF and the *return on* the AWF (the CAC). The fair value of the acquired or current AWF of \$200 is estimated based on the pre-tax replacement cost.

Future operating expenses include the cost to both grow and maintain the AWF. The initial investment to increase the AWF should be excluded to avoid double counting the initial investment and the future maintenance expenses. In other words, the *return on* the AWF would increase due to its growth and future operating expenses provide for maintaining the increase in the AWF (see Section 3.7 of the Monograph). The Working Group recognizes that this adjustment is generally minor and may be excluded in practice. However, such an adjustment provides for a complete reconciliation of value in the context of a financial overlay as discussed in the Toolkit.

The Working Group recognizes that under circumstances where the relationship between AWF and revenue (e.g., the revenue per employee) remains relatively stable, discrete annual calculations may not be required (see the Practical Expedient). However, in those circumstances where the relationship is projected to significantly change (e.g., increasing revenue per employee), the discrete annual analysis would be considered a best practice. The need for discrete AWF calculations (and the resulting AWF CAC) would be based on the judgment of the valuation specialist.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
Revenue	\$ 1,000	\$ 1,050	\$ 1,165	\$ 1,306	\$ 1,456	\$ 1,596	\$ 1,718	\$ 1,823	\$ 1,907	\$ 1,976	\$ 2,035
Growth	5%	5%	11%	12%	11%	10%	8%	6%	5%	4%	3%
Beginning Balance	200	211	222	246	276	308	338	364	386	404	419
add: Pre-Tax Investment in AWF Growth (1)	11	11	24	30	32	30	26	22	18	15	13
Ending Balance	211	222	246	276	308	338	364	386	404	419	432
Average Balance	206	217	234	261	292	323	351	375	395	412	426
Mid-period Adjustment Factor	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535	0.9535
Return On (2)	10%	20	21	22	25	28	31	33	36	38	39
Percent of Revenue	2.0%	2.0%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%

(1) Growth investment correlates to the annual increase in revenue. For example in Year 2 revenue increases by 5% and the AWF grows by \$11 (5% x \$211).

(2) The required rate of return on identified intangible assets such as the AWF may be estimated through the relative risk of the intangible assets compared to the entity's overall WACC.

## Customer Relationships MPEEM: Fixed Asset Contributory Asset Charge Based on Technique A - Average Annual Balance

Exhibit A-8

This exhibit uses the Average Annual Balance technique (Technique A) for the calculation of fixed asset CACs in the valuation of customer relationships using an MPEEM. Aggregate CACs were estimated in the prior exhibits. An analysis of the subject intangible asset should be performed to assess the required levels of contributory assets. The aggregate CACs on those assets are then allocated appropriately to the subject intangible asset. For the purposes of this example all contributory assets have been assumed to benefit all customers equally and the CACs are allocated in proportion to revenue. The allocation of CACs is based on facts and circumstances. For example, in other circumstances a disproportionate amount of the fixed assets may be used to manufacture the products sold to the identified customer relationships (\$900 in revenue in Year 1) versus the unidentified customers (\$100 in Year 1). In a similar manner, the IP may be disproportionately allocable to the identified customer relationships rather than the unidentified customers.

In addition to the CACs related to working capital, fixed assets and AWF, profit splits in the form of royalty rates were also applied for the use of the trade name and IP. This example assumes that certain expense items (e.g., advertising and R&D) are included in the royalty rate and have been eliminated from the excess earnings to avoid double counting the expense.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
Total Revenue		\$ 1,000	\$ 1,050	\$ 1,165	\$ 1,306	\$ 1,456	\$ 1,596	\$ 1,718	\$ 1,823	\$ 1,907	\$ 1,976	\$ 2,035
Customer Relationship Revenue (1)		900	855	770	616	431	259	130	65	33	-	-
Gross Profit	90%	810	770	693	554	388	233	117	59	30	-	-
Operating Expenses:												
Maintenance R&D (2)	0.0%	-	-	-	-	-	-	-	-	-	-	-
R&D - Future IP (2)	0.0%	-	-	-	-	-	-	-	-	-	-	-
Trade name advertising (3)	0.0%	-	-	-	-	-	-	-	-	-	-	-
Current customer marketing (4)	3%	27	26	23	18	13	8	4	2	1	-	-
Future customer marketing (5)		-	-	-	-	-	-	-	-	-	-	-
Total marketing		27	26	23	18	13	8	4	2	1	-	-
Total G&A	7%	63	60	54	43	30	18	9	5	2	-	-
Total Operating Expenses		90	86	77	61	43	26	13	7	3	-	-
EBITDA		720	684	616	493	345	207	104	52	27	-	-
Depreciation (6)		166	303	256	194	131	81	42	20	9	-	-
Amortization - AWF (8)		18	16	13	9	6	3	2	1	-	-	-
EBIT		536	365	347	290	208	123	60	31	18	-	-
less: Trade Name Royalty (7)	5%	45	43	39	31	22	13	7	3	2	-	-
IP Royalty (7)	10%	90	86	77	62	43	26	13	7	3	-	-
Adjusted EBIT		401	236	231	197	143	84	40	21	13	-	-
Taxes	40%	160	94	92	79	57	34	16	8	5	-	-
Debt Free Net Income		241	142	139	118	86	50	24	13	8	-	-
add: Depreciation (6)		166	303	256	194	131	81	42	20	9	-	-
Amortization - AWF (8)		18	16	13	9	6	3	2	1	-	-	-
AWF Growth Investment (9)		10	9	16	14	9	5	2	1	-	-	-
less: Return On Working Capital (10)		8	7	6	5	4	2	1	1	-	-	-
Return Of Fixed Assets (11)		257	244	212	164	112	67	34	17	9	-	-
Return On Fixed Assets (11)		43	41	37	29	20	12	6	3	2	-	-
Return On AWF (9)		18	17	15	12	8	5	2	1	1	-	-
Excess Earnings		109	161	154	125	88	53	27	13	5	-	-
PV Factor (12)	10%	0.9535	0.8668	0.7880	0.7164	0.6512	0.5920	0.5382	0.4893	0.4448	0.4044	0.4044
PV Excess Earnings		104	140	121	90	57	31	15	6	2	-	-
Total PV Excess Earnings		566										
Tax Amortization Benefit (13)		153										
Fair Value - Customer Relationships		719										



**Customer Relationships MPEEM: Fixed Asset Contributory Asset Charge Based on Technique A - Average Annual Balance (Continued)****Exhibit A-8**

- (1) Assumed to decline over a 9 year period. Therefore, calculations only continue for those 9 years.
- (2) Maintenance and future R&D is assumed to be included in the 10% IP royalty rate (licensor responsible for all R&D in the future) and is therefore removed in the excess earnings. The R&D expenses would be reflected as a reduction to the royalty in the valuation of the IP. Alternately, it might be determined that the royalty rate is stated net of the R&D expenses in which case the R&D expenses would remain in the excess earnings.
- (3) Advertising expenses removed under the same assumptions provided in footnote 2.
- (4) Maintenance marketing expenses specific to current recognizable customer relationships.
- (5) Marketing expenses related to creating and maintaining unrecognized and future customer relationships are excluded.
- (6) Exhibit A-2 amounts allocated in proportion to revenue.
- (7) Royalty rates assumed to be gross (e.g., inclusive of advertising and R&D expenses). The same rates would be incorporated in the valuation of the trade name and IP. Note that the royalty charge is applicable to both current and future contributory assets (see paragraphs 3.6.02 - 3.6.04).
- (8) Exhibit A-3 amounts allocated in proportion to revenue.
- (9) Exhibit A-7 amounts allocated in proportion to revenue.
- (10) Exhibit A-4 amounts allocated in proportion to revenue.
- (11) Exhibit A-5 amounts allocated in proportion to revenue.
- (12) Discount rate assumed to be equivalent to the IRR/WACC and a mid-period convention.
- (13) Based on a 15 year straight-line amortization period, 40% tax rate and a 10% discount rate using a mid-period convention.

## Customer Relationships MPEEM: Fixed Asset Contributory Asset Charge Based on Technique B - Level Payment

Exhibit A-9

Applies the Level Payment methodology for fixed assets to the customer relationships. All other CACs and adjustments discussed in Exhibit A-8 remain the same.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
Total Revenue		\$ 1,000	\$ 1,050	\$ 1,165	\$ 1,306	\$ 1,456	\$ 1,596	\$ 1,718	\$ 1,823	\$ 1,907	\$ 1,976	\$ 2,035
Customer Relationship Revenue		900	855	770	616	431	259	130	65	33	-	-
Gross Profit	90%	810	770	693	554	388	233	117	59	30	-	-
Operating Expenses:												
Maintenance R&D	0.0%	-	-	-	-	-	-	-	-	-	-	-
R&D - Future IP	0.0%	-	-	-	-	-	-	-	-	-	-	-
Trade name advertising	0.0%	-	-	-	-	-	-	-	-	-	-	-
Current customer marketing	3%	27	26	23	18	13	8	4	2	1	-	-
Future customer marketing		-	-	-	-	-	-	-	-	-	-	-
Total marketing		27	26	23	18	13	8	4	2	1	-	-
Total G&A	7%	63	60	54	43	30	18	9	5	2	-	-
Total Operating Expenses		90	86	77	61	43	26	13	7	3	-	-
EBITDA		720	684	616	493	345	207	104	52	27	-	-
Depreciation		166	303	256	194	131	81	42	20	9	-	-
Amortization - AWF		18	16	13	9	6	3	2	1	-	-	-
EBIT		536	365	347	290	208	123	60	31	18	-	-
less: Trade Name Royalty	5%	45	43	39	31	22	13	7	3	2	-	-
IP Royalty	10%	90	86	77	62	43	26	13	7	3	-	-
Adjusted EBIT		401	236	231	197	143	84	40	21	13	-	-
Taxes	40%	160	94	92	79	57	34	16	8	5	-	-
Debt Free Net Income		241	142	139	118	86	50	24	13	8	-	-
add: Depreciation		166	303	256	194	131	81	42	20	9	-	-
Amortization - AWF		18	16	13	9	6	3	2	1	-	-	-
AWF Growth Investment		10	9	16	14	9	5	2	1	-	-	-
less: Return On Working Capital		8	7	6	5	4	2	1	1	-	-	-
<b>Return On &amp; Of Fixed Assets (1)</b>		<b>292</b>	<b>281</b>	<b>247</b>	<b>192</b>	<b>132</b>	<b>78</b>	<b>40</b>	<b>20</b>	<b>11</b>	-	-
Return On AWF		18	17	15	12	8	5	2	1	1	-	-
<b>Excess Earnings</b>		<b>117</b>	<b>165</b>	<b>156</b>	<b>126</b>	<b>88</b>	<b>54</b>	<b>27</b>	<b>13</b>	<b>5</b>	-	-
PV Factor	10%	0.9535	0.8668	0.7880	0.7164	0.6512	0.5920	0.5382	0.4893	0.4448	0.4044	0.4044
PV Excess Earnings		112	143	123	90	57	32	15	6	2	-	-
Total PV Excess Earnings		580										
Tax Amortization Benefit		157										
Fair Value - Customer Relationships		737										

(1) Exhibit A-6 amounts allocated in proportion to revenue.

## Weighted Average Return on Assets (WARA)

Exhibit A-10

The WARA analysis is applied to the fair value of the assets and the implied rate of return on goodwill (excess purchase price) is calculated. The purpose of the WARA is the assessment of the reasonableness of the asset-specific returns for identified intangibles and the implied (or calculated) return on the goodwill (excess purchase price). The WARA then should be compared to the derived market-based WACC (see paragraph 4.3.07).

	Average Annual Balance			Level Payment		
	Fair Value	Rate of Return	Weighted Return	Fair Value	Rate of Return	Weighted Return
Working Capital (1)	\$ 285	3%	\$ 8.6	\$ 285	3%	\$ 8.6
Fixed Assets (2)	1,000	5%	50.0	1,000	5%	50.0
Trade Name (3)	80	10%	8.0	80	10%	8.0
IP (3)	196	10%	19.6	196	10%	19.6
Customer Relationships (4)	719	10%	71.9	737	10%	73.7
AWF (5)	200	10%	20.0	200	10%	20.0
Excess Purchase Price (6)	<u>3,145</u>	12.2%	<u>383.7</u>	<u>3,144</u>	12.2%	<u>383.6</u>
Total (7)	5,625	10.0%	561.7	5,642	10.0%	563.4

(1) Exhibit A-4.

(2) Exhibit A-5.

(3) See Toolkit for the valuation of these assets.

(4) Exhibits A-8 and A-9. The Working Group believes that both of these values are within an acceptable range of results as the difference is the result of timing differences inherent in the CAC calculations.

(5) Exhibit A-7.

(6) Other than AWF. In a business combination, actual recorded goodwill will differ from this due to other purchase accounting adjustments.

(7) Includes the depreciation tax benefit from the increase in fixed asset value and the TAB on all intangible assets.

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## Appendix B: Practical Expedient

The Working Group prepared this example of practical expedients to better illustrate simplifying assumptions that are often appropriate.

### Practical Expedient Example

**IMPORTANT NOTE:** These sample calculations are for demonstration purposes only and are not intended as the only form of model or calculation, or final report exhibit, that is acceptable. In some cases, these calculations include details to demonstrate a point made in the Monograph and would not be expected in a typical analysis. In this example, a practical expedient was not used for the AWF calculations related to its amortization and the add-back of growth investments. Because of the fact pattern in this example (AWF fair value is high relative to the fair value of the customer relationships), using a practical expedient for the AWF has a significant affect on the FV of the subject intangible asset.

This example demonstrates concepts put forth in this Monograph. It provides a practical expedient in circumstances when certain assumptions can be made with regard to the application of CACs. Whether or not these practical expedients are appropriate should be evaluated by the valuation specialist and, to the extent that they are applied, the assumptions should be clearly stated in the analysis. The contributory assets included in this example are as follows:

- Working Capital
- Fixed Assets
- Assembled Workforce
- Trade Name\*
- Intellectual Property\*

\*These assets contribute to the revenue stream used in the valuation of the customer relationships. However, because they are valued by use of the relief from royalty method, this is considered a profit split and contributory asset charges are not applied.

The simplifying assumptions include the following:

- The use of accounting depreciation in combination with an appropriate effective tax rate approximates the effect of tax depreciation;
- The projections of fixed asset depreciation reflected in the PFI approximate a detailed waterfall calculation of existing basis in the fixed assets with an adjustment for step up, if any, to the fixed asset fair value;
- Future levels of contributory assets (non-income based: working capital, fixed assets, and AWF) are closely correlated with revenue and can be approximately represented with a “percent of revenue” calculation.

Exhibit B-1: Entity Value

Exhibit B-1a: Depreciation: \$745 of Financial Reporting Basis with an 8-Year Straight-Line Depreciation

Exhibit B-2: Adjusted PFI and Entity Value

Exhibit B-2a: Incremental Depreciation due to the \$255 Fair Value Step-up with an 8-Year Straight-Line Depreciation

Exhibit B-3: Contributory Asset Charges - Basis for Practical Expedients

Exhibit B-4: Contributory Asset Charges

Exhibit B-5: Customer Relationships MPEEM: Practical Expedients

## Entity Value (1)

Exhibit B-1

The Entity Value in this Practical Expedient is based on 8-year straight-line depreciation (rather than tax depreciation) and an effective tax rate to equate to the Entity Value in the Comprehensive Example. Based on the market participant PFI and purchase price of \$4,746, the IRR of the transaction is calculated to be 10%. In addition a market-based WACC of 10% is estimated, which reconciles to the IRR. This example reflects a non-taxable transaction.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
Revenue		\$ 1,000	\$ 1,050	\$ 1,165	\$ 1,306	\$ 1,456	\$ 1,596	\$ 1,718	\$ 1,823	\$ 1,907	\$ 1,976	\$ 2,035
Gross Profit	90%	900	945	1,049	1,175	1,310	1,436	1,546	1,641	1,716	1,778	1,832
Operating Expenses:												
Maintenance R&D (2)	0.5%	5	5	6	7	7	8	9	9	10	10	10
R&D - Future IP (3)	2.5%	25	26	29	33	36	40	43	46	48	49	51
Trade name advertising (4)	0.5%	5	5	6	7	7	8	9	9	10	10	10
Current customer marketing (5)	3%	27	26	23	18	13	8	4	2	1	-	-
Future customer marketing (6)		18	22	29	40	53	64	73	80	84	89	92
Total marketing	5%	50	53	58	65	73	80	86	91	95	99	102
Total G&A	7%	70	74	82	91	102	112	120	128	133	138	142
Total Operating Expenses	15%	150	158	175	196	218	240	258	274	286	296	305
EBITDA		750	787	874	979	1,092	1,196	1,288	1,367	1,430	1,482	1,527
Depreciation (7)		222	246	275	311	351	392	436	481	519	545	567
Amortization (8)		-	-	-	-	-	-	-	-	-	-	-
EBIT		528	541	599	668	741	804	852	886	911	937	960
Taxes (9)	38.4%	203	208	230	256	284	308	327	340	350	359	368
Debt Free Net Income		325	333	369	412	457	496	525	546	561	578	592
less: Incremental Working Capital (10)	30%	15	15	35	42	45	42	37	32	25	21	18
add: Depreciation (11)		222	246	275	311	351	392	436	481	519	545	567
less: Capital Expenditures		286	400	450	500	525	541	557	574	591	609	627
Debt Free Cash Flow		246	164	159	181	238	305	367	421	464	493	514
Residual Value (12)												7,343
PV Factor (13)	10%	0.9535	0.8668	0.7880	0.7164	0.6512	0.5920	0.5382	0.4893	0.4448	0.4044	0.4044
PV DFCF		235	142	125	130	155	181	198	206	206	199	2,969
<b>Entity Value</b>		<b>4,746</b>										

(1) Entity Value projections based upon market participant assumptions. Excludes entity-specific synergies.

(2) Maintenance R&D applicable to both current and future IP.

(3) R&D expense for the development of future IP.

(4) Advertising expense related to the trade name.

(5) Maintenance marketing expenses specific to current recognizable customer relationships with following revenue (Exhibit B-5 footnote 1):

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Customer relationship revenue	900	855	770	616	431	259	130	65	33	-

(6) Marketing expenses related to creating and maintaining unrecognized and future customer relationships.

(7) From Exhibit B-1a.

(8) Tax basis of intangible assets is zero.

(9) The effective tax rate is calculated such that the Entity Value is equivalent to that provided in the Comprehensive Example. Tax rate is not rounded.

(10) Represents 30% of incremental revenue. A beginning working capital balance of \$285 is based on Year 0 revenue of \$950.

(11) The residual year difference in depreciation and capital expenditures recognizes the long term growth in the business and the depreciation lag relative to capital expenditures.

(12) Based on constant growth model assuming a 3% long-term growth rate.

(13) The market participant based IRR is equivalent to the WACC of 10%. The mid-period convention is applied.

**Depreciation: \$745 of Financial Reporting Basis with an 8-Year Straight-Line Depreciation (1)**

**Exhibit B-1a**

This is a reference schedule for the projected depreciation reflected in the Entity Value. The valuation specialist should have an understanding of the assumptions reflected in, and the calculation of, the depreciation provided in the PFI. Such an understanding will allow for an assessment of the reasonableness of the simplifying assumption that the tax depreciation and statutory tax rate are reasonably approximated by accounting depreciation and the effective tax rate.

<b>Straight-Line Depreciation Of:</b>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>	<u>Residual</u>
Acquired or Current Fixed Assets (2)	\$ 186	\$ 160	\$ 133	\$ 106	\$ 80	\$ 53	\$ 27	\$ -	\$ -	\$ -	
<b>Capital Expenditures (3):</b>											
Year 1	36	36	36	36	36	36	36	36	-	-	-
Year 2		50	50	50	50	50	50	50	50	-	-
Year 3			56	56	56	56	56	56	56	56	-
Year 4				63	63	63	63	63	63	63	63
Year 5					66	66	66	66	66	66	66
Year 6						68	68	68	68	68	68
Year 7							70	70	70	70	70
Year 8								72	72	72	72
Year 9									74	74	74
Year 10										76	76
Residual											78
<b>Total Depreciation (4)</b>	<u>222</u>	<u>246</u>	<u>275</u>	<u>311</u>	<u>351</u>	<u>392</u>	<u>436</u>	<u>481</u>	<u>519</u>	<u>545</u>	<u>567</u>
<b>Fixed Asset Turnover</b>											
Beginning Balance	745	809	963	1,138	1,327	1,501	1,650	1,771	1,864	1,936	2,000
add: Capital Expenditures	286	400	450	500	525	541	557	574	591	609	627
less: Depreciation	<u>222</u>	<u>246</u>	<u>275</u>	<u>311</u>	<u>351</u>	<u>392</u>	<u>436</u>	<u>481</u>	<u>519</u>	<u>545</u>	<u>567</u>
Ending Balance	809	963	1,138	1,327	1,501	1,650	1,771	1,864	1,936	2,000	2,060
Average Fixed Assets	777	886	1,051	1,233	1,414	1,576	1,711	1,818	1,900	1,968	2,030
Fixed Asset Turnover	129%	119%	111%	106%	103%	101%	100%	100%	100%	100%	100%

(1) Assumes accounting depreciation in combination with an effective tax rate is a reasonable proxy for tax depreciation in combination with the statutory tax rate and is included in the PFI.

(2) The carrying value of the fixed assets is \$745 and the annual depreciation is assumed.

(3) Straight-line over 8 years with the first year of depreciation recognized in the year of acquisition.

(4) As reflected in the PFI.

## Adjusted PFI and Entity Value

Exhibit B-2

The PFI in this exhibit is adjusted to reflect the tax benefits that would result from a restatement of the tax basis of certain of the assets to fair value. The tax benefit inherent in the fair value of an asset is not reflected in the PFI of a non-taxable transaction. For example, the step-up in fixed assets or the fair value of an assembled workforce are not reflected in the entity's tax basis and the PFI for the transaction excludes this benefit. In order to maintain consistency between the PFI to be used in valuing the customer relationships and the fair value of the assets to which a CAC will be applied, the PFI should be adjusted to include the cash flow benefits of the increase in the tax basis of the contributory assets. The Working Group believes that the fair value of an intangible asset should not differ depending on the tax structure of a particular transaction. For additional discussion on the applicability of TABs see paragraphs 3.1.08 and 4.3.08 in this Monograph and paragraphs 5.3.9 - 5.3.108 in the 2001 AICPA IPR&D Practice Aid.

When the PFI is adjusted to include the additional cash flow benefit embedded in the fair value of the contributory assets, this results in an Adjusted Entity Value that is greater than the Entity Value by an amount equal to the present value of the tax benefits related to the increase in tax basis. The Entity Value is recalculated at the WACC/IRR of 10% to arrive at the Adjusted Entity Value of \$4,872. This increase of \$126 is equivalent to the present value of the incremental tax benefit related to the step-up in the fixed assets and the assembled workforce. This Adjusted Entity Value is used only for reconciliation at this phase of the analysis.

The Working Group recognizes that these adjustments might not be significant to the analysis and may be excluded based on the judgment of the valuation specialist.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
Revenue		\$ 1,000	\$ 1,050	\$ 1,165	\$ 1,306	\$ 1,456	\$ 1,596	\$ 1,718	\$ 1,823	\$ 1,907	\$ 1,976	\$ 2,035
Gross Profit	90%	900	945	1,049	1,175	1,310	1,436	1,546	1,641	1,716	1,778	1,832
Operating Expenses:												
Maintenance R&D	0.5%	5	5	6	7	7	8	9	9	10	10	10
R&D - Future IP	2.5%	25	26	29	33	36	40	43	46	48	49	51
Trade name advertising	0.5%	5	5	6	7	7	8	9	9	10	10	10
Current customer marketing	3%	27	26	23	18	13	8	4	2	1	-	-
Future customer marketing		18	22	29	40	53	64	73	80	84	89	92
Total marketing	5%	50	53	58	65	73	80	86	91	95	99	102
Total G&A	7%	70	74	82	91	102	112	120	128	133	138	142
Total Operating Expenses	15%	150	158	175	196	218	240	258	274	286	296	305
EBITDA		750	787	874	979	1,092	1,196	1,288	1,367	1,430	1,482	1,527
Depreciation (1)		222	246	275	311	351	392	436	481	519	545	567
<b>Depreciation of fixed asset step-up (2)</b>		<b>63</b>	<b>54</b>	<b>45</b>	<b>36</b>	<b>27</b>	<b>18</b>	<b>9</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Adjusted Depreciation</b>		<b>285</b>	<b>300</b>	<b>320</b>	<b>347</b>	<b>378</b>	<b>410</b>	<b>445</b>	<b>481</b>	<b>519</b>	<b>545</b>	<b>567</b>
<b>Amortization - AWF (3)</b>		<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>-</b>
EBIT		445	467	534	612	694	766	823	866	891	917	960
Taxes	38%	171	179	205	235	266	294	316	332	342	352	368
Debt Free Net Income		274	288	329	377	428	472	507	534	549	565	592
less: Incremental Working Capital	30%	15	15	35	42	45	42	37	32	25	21	18
<b>add: Adjusted Depreciation</b>		<b>285</b>	<b>300</b>	<b>320</b>	<b>347</b>	<b>378</b>	<b>410</b>	<b>445</b>	<b>481</b>	<b>519</b>	<b>545</b>	<b>567</b>
<b>Amortization - AWF (3)</b>		<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>
less: Capital Expenditures		286	400	450	500	525	541	557	574	591	609	627
Debt Free Cash Flow		278	193	184	202	256	319	378	429	472	500	514
Residual Value												7,343
PV Factor (4)	10%	0.9535	0.8668	0.7880	0.7164	0.6512	0.5920	0.5382	0.4893	0.4448	0.4044	0.4044
PV DFCF		265	167	145	145	167	189	203	210	210	202	2,969
<b>Adjusted Entity Value (5)</b>		<b>4,872</b>										

(1) From Exhibit B-1.

(2) See sample calculation in Exhibit B-2a.

(3) Reflects the amortization of the AWF. For purposes of this example the amortization period for the AWF is assumed to be 10 years rather than 15 years as is required in the U.S. under IRS Code Section 197. 10 years is applied for demonstration purposes as the projections presented are 10 years in length. Tax benefits related to the future replacement of, or increase in, the AWF are reflected in the operating expenses and no adjustment is required other than for the initial fair value.

(4) The WACC is not adjusted for the inclusion of the incremental tax benefit and remains at 10%.

(5) The Adjusted Entity Value increase over the Entity Value is due solely to the incremental tax benefits. This Adjusted Entity Value is used only for reconciliation purposes.



**Incremental Depreciation due to the \$255 Fair Value Step-up with an 8-Year Straight-Line Depreciation (1)**

**Exhibit B-2a**

This is a reference schedule for the projected depreciation reflected in the Adjusted Entity Value and also provides the fixed asset turnover based on the fair value of the fixed assets. The valuation specialist should have an understanding of the assumptions reflected in, and the calculation of, the depreciation provided in the PFI. Such an understanding will allow for an assessment of the reasonableness of the simplifying assumption that the tax depreciation and statutory tax rate are reasonably approximated by accounting depreciation and the effective tax rate.

RUL (Years)	Step-up	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
1	9	9						
2	18	9	9					
3	27	9	9	9				
4	36	9	9	9	9			
5	45	9	9	9	9	9		
6	54	9	9	9	9	9	9	
7	63	9	9	9	9	9	9	9
Total (rounded) (2)	252	63	54	45	36	27	18	9

**Fixed Asset Turnover (3)**

Beginning Balance		1,000	1,001	1,101	1,231	1,384	1,531	1,662	1,774	1,867	1,939	2,003
add: Capital Expenditures		286	400	450	500	525	541	557	574	591	609	627
less: Depreciation from Exhibit B-1a		222	246	275	311	351	392	436	481	519	545	567
less: Incremental depreciation above		<u>63</u>	<u>54</u>	<u>45</u>	<u>36</u>	<u>27</u>	<u>18</u>	<u>9</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Ending Balance		1,001	1,101	1,231	1,384	1,531	1,662	1,774	1,867	1,939	2,003	2,063
Average Fixed Assets		1,001	1,051	1,166	1,308	1,458	1,597	1,718	1,821	1,903	1,971	2,033
Fixed Asset Turnover (4)		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

- (1) Calculates the incremental depreciation due to the recognition of the fair value of the fixed assets. This is applied as an incremental amount to the depreciation reflected in Exhibit B-1. This example assumes that 1 year of depreciation was recognized in the year of acquisition, therefore 7 years of depreciation remain for the assets acquired in the prior year. The \$3 difference from \$255 is due to rounding.
- (2) Reflects the incremental depreciation due to the recognition of the fair value of the fixed assets.
- (3) The fixed asset turnover is provided to assess the ongoing relationship between the fixed assets and revenue. To the extent that the fixed asset turnover remains relatively constant, the practical expedient assumption may be appropriate. If there is a period during the early years of the projection where the relationship between fixed assets and revenue is migrating towards a long-term normalized amount, then this assumption should be applied on a blended basis or for periods after which a normalized amount is achieved. If, however, the turnover rate continues to vary significantly over the forecast period, the practical expedient assumption might not be appropriate.
- (4) Annual revenue / average fixed assets.

## Contributory Asset Charges - Basis for Practical Expedients

Exhibit B-3

One of the fundamental premises of a CAC is that investments made at a point in time have economic benefits extending beyond the year the investment was made. A CAC essentially replaces the initial investment with an annual charge over the life of the investment such that the PV of the charge is equivalent to the initial investment. In other words the PV impact to the projections is zero. This applies to the initial fair value of the acquired or current contributory asset as well as future investments that increase the investment in the respective contributory assets.

**Working Capital:** The initial balance is replaced with a perpetual *return on*. The nature of working capital (see paragraph 3.2.01) removes the need to provide a *return of* the asset over its RUL. Further, each annual investment in incremental working capital is replaced with a perpetual *return on* the incremental investment so that *return on* the working capital during any period reflects an accumulation of the perpetual charge for the initial balance and for any subsequent investments in incremental amounts. There is no maintenance investment reflected in the PFI.

**Practical Expedient (Working Capital):** To the extent that working capital is assumed to maintain a constant relationship with revenue, the incremental investments in working capital will correlate with revenue growth. As the rate of return on each annual investment in working capital remains the same, the accumulation of the *return on* working capital would also maintain a constant relationship with revenue. Therefore, calculating the initial *return on* the average balance of working capital and applying this CAC as a percent of revenue in the future reasonably approximates the detailed calculation provided in the Comprehensive Example and Toolkit. Note that if there is a period during the early years of the projection where the relationship between working capital and revenue is migrating towards a long-term normalized amount then this assumption should be applied on a blended basis or for periods after which a normalized amount is achieved.

**Fixed Assets:** The CAC for fixed assets varies from that of working capital in that fixed assets (other than land) are assumed to deteriorate in value and a *return of* in addition to the *return on* should be applied. The same underlying premise does hold; that the present value of the *return on* and *return of* is equal to the initial investment. Therefore, the initial balance as well as future investments are replaced with a present value equivalent *return of* and *return on*. In the Comprehensive Example, the annual fixed asset investments, which include both the replacement of fixed assets as well as incremental investment, are replaced with a *return on* and *return of* for each annual investment. The maintenance investment is reflected in the PFI as a sub-set of the projected capital expenditures.

**First Practical Expedient (Fixed Assets):** If the simplifying assumptions stated in the introduction, regarding the effective tax rate and detailed waterfall approximation, are appropriate, then a recalculation of the depreciation in the PFI would not be required. In addition, the adjustment to depreciation to arrive at the Adjusted Entity Value resulting from any differences between the carrying value and the fair value of the fixed assets can be calculated directly. This is incorporated into the analysis by calculating the increased (or decreased) depreciation related to the step-up (or step-down) of the fixed assets and reflected as an adjustment to the depreciation in the Entity Value PFI.

**Second Practical Expedient (Fixed Assets):** As with working capital, if it is reasonable to assume that the future level of fixed assets maintains a constant relationship with revenue (that is, the fixed asset turnover remains relatively constant), then investments in fixed assets will provide for the maintenance of the prior year's balance as well as any growth and the annual amounts will correlate with revenue growth (see Exhibit B-2a). As the rate of return on each annual investment in fixed assets remains the same, the *return on* the average balance of fixed assets would also maintain a constant relationship with revenue. Therefore, calculating the initial *return on* the average balance of fixed assets and applying this CAC as a percent of revenue in the future reasonably approximates the detailed calculations provided in the Comprehensive Example and Toolkit. Note that if there is a period during the early years of the projection where the relationship between fixed assets and revenue is migrating towards a long-term normalized amount then this assumption should be applied on a blended basis or for periods after which a normalized amount is achieved.

**Third Practical Expedient (Fixed Assets):** If it is assumed that projected depreciation in the PFI reflects the economic use of the fixed assets and the differences between tax depreciation and accounting depreciation are captured in the effective tax rate, then the *return of* of the fixed assets in the Average Annual Balance Technique would be equivalent to accounting depreciation. The annual investment in fixed assets is excluded in excess earnings (the investment has been replaced by the CAC). Since the depreciation cash flow adjustment equates to the *return of* of the fixed assets these two adjustments to debt free net income offset each other. Therefore, a reasonable presentation would be to exclude the depreciation cash flow adjustment, capital expenditure investment and the *return of* of the fixed assets in the presentation of the excess earnings for the subject intangible asset.

**Assembled Workforce (or any intangible asset valued with the cost approach):** These contributory assets are similar to fixed assets in that they provide economic benefit beyond the period of the initial investment. However, the means by which the asset is maintained and increased is reflected as an expense rather than cash flow adjustment in the income and cash flow statements. Fixed assets are capitalized and the tax benefit is realized through the deduction of depreciation expense in the future. AWF investments are treated as an immediate expense for financial reporting and tax purposes. To the extent that the fair value of an AWF is based upon the pre-tax cost to create the asset, any investment to increase the AWF would also be measured based on the pre-tax investment rather than an after tax investment. CACs are applied to the annual balance of the fair value of the AWF. Therefore, just as with fixed assets, the investment (in this case, pre-tax expense) should be added back. Unlike fixed assets, the CAC is limited to a *return on* the AWF because the *return of* of the AWF is contained in the operating expenses to maintain the fair value.

**First Practical Expedient (Assembled Workforce):** As discussed in Section 3.7, the initial pre-tax investment to increase the AWF should be added back in the excess income projection to avoid double counting the initial investment and the CAC. This adjustment can be simply calculated by applying the revenue growth rate to the beginning balance of the AWF in any period. This adjustment is also consistent with the approach applied to incremental working capital where the annual investment in increased working capital is removed from the excess earnings projection and is replaced with a *return on* the average annual balance.

**Second Practical Expedient (Assembled Workforce):** To the extent that the AWF is assumed to maintain a constant relationship with revenue (e.g. the revenue per employee remains relatively constant) the incremental investments in the AWF will correlate with revenue growth. As the rate of return on each annual investment in the AWF remains the same, the accumulation of the *return on* the AWF would also maintain a constant relationship with revenue. Therefore, calculating the initial *return on* the average balance of the AWF and applying this CAC as a percent of revenue in the future reasonably approximates the detailed calculation provided in the Comprehensive Example and Toolkit. Note that if there is a period during the early years of the projection where the relationship between the AWF and revenue is migrating towards a long-term normalized amount then this assumption should be applied on a blended basis or for periods after which a normalized amount is achieved.

## Contributory Asset Charges

Exhibit B-4

The assumptions underlying the Comprehensive Example are consistent with the practical expedients discussed in Exhibit B-3. Working capital, fixed assets and the AWF maintain a reasonably constant relationship to the revenue. Therefore the *return on* the aggregate of the contributory assets in the initial period can reasonably be carried forward as a percent of revenue to apply the CACs. The following demonstrates one approach to these practical expedients.

Year 1	Working Capital		Fixed Assets		Assembled Workforce	
Revenue	\$ 950	\$ 1,000	\$ 1,000		\$ 1,000	
Beginning Balance		285	1,000		200	
add: Incremental Investment	30%	15	286 (1)		11 (3)	
less: Return Of (depreciation)		n/a	285 (2)		- (4)	
Ending Balance		300	1,001		211	
Average Balance		293	1,001		206	
Mid-period Adjustment Factor		0.9535	0.9535		0.9535	
Return On (5)	3%	8	5%	48	10%	20
Percent of Revenue		0.84%		4.77%		1.96%
Total <i>Return On</i> applied as a CAC		7.57%				

(1) Exhibit B-1.

(2) Exhibit B-2 includes incremental depreciation due to the fixed asset step-up.

(3) The percent increase in revenue (\$50/\$950 or 5.3%) applied to the initial fair value of \$200, rounded.

(4) The *return of* is reflected in operating expenses as discussed in Exhibit B-3.

(5) After tax rates of return.

## Customer Relationships MPEEM: Practical Expedients

Exhibit B-5

Applies the practical expedients in the valuation of the customer relationships.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
Total Revenue		\$ 1,000	\$ 1,050	\$ 1,165	\$ 1,306	\$ 1,456	\$ 1,596	\$ 1,718	\$ 1,823	\$ 1,907	\$ 1,976	\$ 2,035
Customer Relationship Revenue (1)		900	855	770	616	431	259	130	65	33	-	-
Gross Profit	90%	810	770	693	554	388	233	117	59	30	-	-
Operating Expenses:												
Maintenance R&D (2)	0.0%	-	-	-	-	-	-	-	-	-	-	-
R&D - Future IP (2)	0.0%	-	-	-	-	-	-	-	-	-	-	-
Trade name advertising (3)	0.0%	-	-	-	-	-	-	-	-	-	-	-
Current customer marketing (4)	3%	27	26	23	18	13	8	4	2	1	-	-
Future customer marketing (5)		-	-	-	-	-	-	-	-	-	-	-
Total marketing		27	26	23	18	13	8	4	2	1	-	-
Total G&A	7%	63	60	54	43	30	18	9	5	2	-	-
Total Operating Expenses		90	86	77	61	43	26	13	7	3	-	-
EBITDA		720	684	616	493	345	207	104	52	27	-	-
Adjusted Depreciation (6)		257	244	212	164	112	67	34	17	9	-	-
Amortization - AWF (7)		18	16	13	9	6	3	2	1	-	-	-
EBIT		445	424	391	320	227	137	68	34	18	-	-
less: Trade Name Royalty (8)	5%	45	43	39	31	22	13	7	3	2	-	-
IP Royalty (8)	10%	90	86	77	62	43	26	13	7	3	-	-
Adjusted EBIT		310	295	275	227	162	98	48	24	13	-	-
Taxes	38%	119	113	106	87	62	38	18	9	5	-	-
Debt Free Net Income		191	182	169	140	100	60	30	15	8	-	-
add: Amortization - AWF (8)		18	16	13	9	6	3	2	1	-	-	-
AWF Growth Investment (9)		10	9	16	14	9	5	2	1	-	-	-
less: Return On Contributory Assets (10)		68	65	58	47	33	20	10	5	2	-	-
Excess Earnings		151	142	140	116	82	48	24	12	6	-	-
PV Factor (11)	10%	0.9535	0.8668	0.7880	0.7164	0.6512	0.5920	0.5382	0.4893	0.4448	0.4044	0.4044
PV Excess Earnings		144	123	110	83	53	28	13	6	3	-	-
Total PV Excess Earnings		563										
Tax Amortization Benefit (12)		152										
Fair Value - Customer Relationships		715										
Fair Value - Comprehensive Example (13)		719										

- (1) Assumed to decline over a 9 year period. Therefore, calculations only continue for those 9 years.
- (2) Maintenance and future R&D is assumed to be included in the 10% IP royalty rate (licensor responsible for all R&D in the future) and is therefore removed in the excess earnings. The R&D expenses would be reflected as a reduction to the royalty in the valuation of the IP. Alternately, it might be determined that the royalty rate is stated net of the R&D expenses in which case the R&D expenses would remain in the excess earnings.
- (3) Advertising expenses removed under the same assumptions provided in footnote 2.
- (4) Maintenance marketing expenses specific to current recognizable customer relationships.
- (5) Marketing expenses related to creating and maintaining unrecognized and future customer relationships are excluded.
- (6) Exhibit B-2 amounts allocated in proportion to revenue.
- (7) Exhibit B-2 amounts allocated in proportion to revenue. The amortization of the initial assembled workforce differs from the return of reflected in the operating expenses. This is due to the tax treatment of recapturing the amortizable tax basis that has been expensed historically that would occur in a taxable transaction.
- (8) Royalty rates assumed to be gross (e.g., inclusive of advertising and R&D expenses). The same rates would be incorporated in the valuation of the trade name and IP. Note that the royalty charge is applicable to both current and future contributory assets (see paragraphs 3.6.02 - 3.6.04).
- (9) Exhibit A-7 annual growth investment amounts allocated in proportion to revenue (from Comprehensive Example).
- (10) Exhibit B-4 percentage applied to revenue.
- (11) Discount rate assumed to be equivalent to the IRR/WACC and a mid-period convention.
- (12) Based on a 15 year straight-line amortization period, 40% tax rate and a 10% discount rate using a mid-period convention.
- (13) See Exhibit A-8. Comparison is made to the Average Annual Balance technique.

## Appendix C: Pre-tax versus After-tax Adjustments for Growth Investments in Certain Intangible Assets

This Appendix relates only to the topic discussed in Section 3.7. It is intended to address why the add-back of the growth investment in assembled workforce (or other intangible assets valued using a cost approach or other approach when the expenditure is viewed as a period expense) should be equal to the pre-tax growth investment and not an after-tax amount (assuming the acquired or current assembled workforce was valued using pre-tax cost).

The overall PFI includes future investment to maintain as well as increase the assembled workforce, reflected in the projected cost structure of the business and in the entity value. In the context of an MPEEM used to value a subject intangible asset (such as customer relationships), a CAC or *return on the assembled workforce* will be introduced into the analysis. As indicated elsewhere in this document, investments in assets have utility beyond the period of the cash charge. CACs capture this future utility by replacing the cash charges with a series of charges over the economic life of the asset, as represented by the required *return of* and *return on* the fair value of the necessary level of contributory asset. The following paragraphs address only the *return on* portion of the CAC because the *return of* portion is present in the operating expenses of the entity and is not the subject of this Appendix.

If the acquired or current assembled workforce has a fair value of \$100 and the *return on* is 10%, then the annual CAC would be \$10. This *return on* carries on into perpetuity (the acquired or current assembled workforce balance is maintained in the expenses). The present value of the *return on* is \$100 (\$10/10%) so the cash flow available to other intangible assets (including goodwill) is reduced by \$10 annually in the form of a CAC, or \$100 in present value terms.

Similarly, in the MPEEM used to value a subject intangible asset, CACs related to future assembled workforce investments equate to replacing a growth investment with a perpetual *return on* (the growth investment is replaced with the CAC on that growth). In calculating the CAC, the fair value of the assembled workforce is reflected as having increased by the pre-tax growth investment (see Exhibit A-7 of Appendix A). Therefore, to ensure that the cash flow attributable to the subject intangible asset is not “over-charged” for the contribution of the assembled workforce, the add-back to the analysis has to be on a pre-tax basis.

Following is an example that looks at year one of the cash flows used in an MPEEM to value customer relationships. The example assumes a \$20 growth investment in assembled workforce in year one. For purposes of this example, assume there are no other assets. This simple example shows that value is neither created nor destroyed by equating the MPEEM cash flow attributable to customer relationships to the cash flow used in the entity discounted cash flow.

**Effect of assembled workforce (AWF) growth investment on the cash flow used in the entity value discounted cash flow:**

Year One Pre-tax growth investment in AWF	\$(20)
Tax at 40%	<u>8</u>
After-tax investment*	(12)
*Appears in Entity Value discounted cash flow	

**Effect of assembled workforce (AWF) growth investment on the cash flow used in the customer relationship MPEEM:**

In MPEEM, the above after-tax investment effect still appears:

After-tax investment	(12)
----------------------	------

And the growth investment is replaced with the CAC:

CAC on \$20 increased "value", at 10% = \$2 annually

Year One PV of perpetual \$2 CAC at 10% = \$20	(20)
--	------

Add back growth investment at \$20 pre-tax amount	<u>20</u>
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Net reduction in cash flow available for customer relationships	\$(12)
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These calculations simply demonstrate that the cash flow effect in the entity value (\$12) equals the cash flow effect on customer relationship value in the MPEEM (\$12). No value created or destroyed.

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