Learning Module 7: Analysis of Long Term Assets

LOS 7a: compare the financial reporting of the following types of intangible assets: purchased, internally developed, and acquired in a business combination

Intangible assets, from its name, are assets that lack physical substance. Intangible assets encompass items with exclusive rights like patents, copyrights, trademarks, and franchises.

According to IFRS, identifiable intangible assets must meet three **definitional** criteria:

1. it must be separable or arise from contractual or legal rights,
2. it must be under the company's control and
3. it should be expected to provide future economic benefits.

Additionally, identifiable intangible assets must meet two **recognition criteria**:

1. the asset will likely bring future economic benefits to the company and
2. the asset's cost can be reliably measured.

An example of an unidentifiable intangible asset is goodwill. Goodwill arises during the acquisition of a company when the purchase price exceeds the fair value of the net identifiable assets acquired.

The accounting treatment for intangible assets depends on the method of acquisition. Intangible assets may be acquired in three primary ways: purchased in situations other than business combinations, developed internally, and acquired in business combinations. The accounting treatment accorded to an asset depends on which of these methods is used in its acquisition.

Financial Reporting for Intangible Assets

Intangible Assets Purchased in Situations Other Than Business Combinations

Intangible assets, such as patents purchased outside of business combinations, are recorded at

their fair value, which is usually the purchase price. When multiple intangible assets are acquired together, the purchase price is allocated to each asset based on its fair value.

Analysts focus more on understanding the types of intangible assets acquired rather than the exact value assigned to each asset. This approach provides insights into the company’s strategic direction and future potential.

Intangible Assets Developed Internally

The costs of internally developed intangible assets are generally expensed when incurred, contrasting with the treatment of construction costs for tangible assets. In some cases, the costs incurred to develop an intangible asset internally are capitalized. This brings up key analytical issues, such as comparability across companies and the impact on a company's trend analysis.

The requirement to expense the costs of internally developed intangible assets should be compared to capitalizing the costs of acquiring intangible assets in non-business combination situations. Since internally developed intangible assets are typically expensed, a company developing assets like patents, copyrights, or brands through R&D or advertising will show fewer assets compared to a company purchasing such assets. On the statement of cash flows, costs for internally developing intangible assets are considered operating cash outflows, whereas acquisition costs are classified as investing cash outflows. Therefore, developing versus acquiring intangible assets can affect financial ratios.

IFRS Treatment

IFRS mandates that expenditures on research (or during the research phase of an internal project) be expensed and not capitalized as an intangible asset. According to IAS 38, Intangible Assets, research is defined as “original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding.” The research phase of an internal project refers to the period when a company cannot demonstrate that an intangible asset is being created, such as the search for alternative materials or systems for production processes.

However, IFRS allows companies to recognize an intangible asset from development expenditures or during the development phase of an internal project if certain criteria are met, such as demonstrating the technical feasibility of completing the intangible asset and the intent to use or sell it.

According to 4 IAS 38, Intangible Assets, paragraph 8, Definitions, development is “the application of research findings or other knowledge to a plan or design for producing new or substantially improved materials, devices, products, processes, systems, or services before the start of commercial production or use.”

US GAAP Treatment

Under US GAAP, both research and development costs are generally expensed when incurred. However, certain costs related to software development must be capitalized. Costs to develop software for sale are expensed until the product’s technological feasibility is established and capitalized thereafter. Similarly, for software developed for internal use, costs are expensed until it is probable that the project will be completed and the software used as intended, after which development costs are capitalized. The criteria for capitalization of software development costs are similar to those for all internally developed intangible assets under IFRS, including the costs of employees who build and test the software.

Intangible Assets Acquired in a Business Combination

When a company purchases another, the acquisition method of accounting is used. This involves the acquiring company allocating the purchase price to the acquired assets and assumed liabilities at their fair values. Any excess amount over the identifiable net assets' value is recorded as goodwill, which is inseparable from the business itself.

Under IFRS, acquired assets include identifiable intangible assets that meet specific criteria. If an item from a business combination does not qualify as a tangible or identifiable intangible asset, it is classified as goodwill.

According to US GAAP, two conditions must be considered when assessing whether an intangible

asset acquired in a business combination should be recognized separately from goodwill. The asset must either arise from contractual or legal rights or be capable of being separated from the acquired company. Such intangible assets include patents, copyrights, franchises, licenses, internet domain names, and audiovisual materials.

Question 1

Which of the following statements is *most* accurate?

A. A company that has developed intangible assets internally will recognize fewer assets than one that has obtained intangible assets through an external purchase.
B. A company that has developed intangible assets internally will recognize a higher amount of assets than a company that has obtained intangible assets through an external purchase.
C. A company that has developed intangible assets internally will report an amount of assets that is equivalent to that of a company that has obtained intangible assets through an external purchase.

Solution

The correct answer is **A.**

Under most accounting standards, such as the International Financial Reporting Standards (IFRS) and the US Generally Accepted Accounting Principles (GAAP), companies are not allowed to capitalize (i.e., recognize as assets) expenses related to the internal development of most intangible assets (e.g., research and development costs). These costs are usually expensed as they are incurred. On the other hand, when a company buys intangible assets from an external party, it can recognize them as assets on the balance sheet at the purchase price.

Therefore, a company that has developed intangible assets internally will typically have fewer intangible assets on its balance sheet than a company that has acquired similar assets through an external purchase.

Question 2

Compared to a company that develops an intangible asset internally, a company that purchases the same asset would exhibit:

A. Higher cash flow from operations.
B. Higher cash flow from investing activities.
C. Higher cash flow from financing activities.

Solution

The correct answer is **B.**

The company that develops the asset internally would typically expense related costs, such as research and development costs, which would be reflected as a reduction in the cash flow from operations. The company that purchases the asset would record the purchase as a cash outflow in the investing activities section of the cash flow statement. This means that the company that purchases the intangible asset would exhibit a higher (in absolute terms, more negative) cash outflow in the investing activities section of its cash flow statement than the company that develops the asset internally.

Here is an example:

Company A develops a new software program internally. The company incurs $1 million in research and development expenses over the course of the project. Company B purchases the same software program for $2 million from another company.

Company A's cash flow from investing activities for the period would be $0 because it did not incur any cash outflows for the software program. Company B's cash flow from investing activities for the period would be -$2 million because it paid $2 million to purchase the software program.

Even though Company A incurred $1 million in research and development expenses, these expenses were expensed in the period they were incurred, so they do not directly impact cash flow from investing activities.

LOS 7b: explain and evaluate how impairment and derecognition of property, plant, and equipment, and intangible assets affect the financial statements and ratios

While depreciation and amortization spread the cost of a long-lived asset over its useful life, impairment charges address unexpected value decreases. An asset is impaired when its carrying amount is higher than its recoverable amount.

International Financial Reporting Standards (IFRS) and Generally Accepted Accounting Principles (US GAAP)P define recoverability slightly differently, but both recognize impairment losses when the asset's carrying amount is not recoverable. Moreover, both IFRS and US GAAP require companies to reduce the carrying amount (book value) of impaired assets. IFRS allows reversals of impairment for identifiable long-lived assets, while US GAAP typically does not.

Impairment and derecognition can significantly impact a company's financial statements and financial ratios. For instance, impairment charges directly reduce a company's asset value on the balance sheet. Derecognition removes the asset entirely. Both scenarios decrease total assets.

On the income statement, impairment charges appear as expenses, lowering reported net income. In terms of financial ratios, changes in asset and income statement figures can affect ratios such as return on assets (ROA), debt-to-equity ratio, and price-to-book ratio. Lower asset values or higher expenses due to impairment can negatively impact these ratios.

Impairment of Property, Plant and Equipment

Accounting regulations do not mandate annual impairment tests for property, plant, and equipment. Instead, at the end of each reporting period, typically a fiscal year, companies must evaluate if there are any signs that an asset might be impaired. If no such indications exist, no impairment test is conducted. However, if signs such as obsolescence, falling demand for products, or technological improvements are detected, the asset's recoverable amount must be calculated to conduct an impairment test.

In cases where the carrying amount of property, plant, and equipment is greater than its

recoverable amount, impairment losses are recorded. These losses decrease the asset's reported value on the balance sheet and also reduce the net income on the income statement. Note that these impairment losses are non-cash charges and do not impact operational cash flow.

The standards for recognizing and measuring impairment losses differ between IFRS and US GAAP. Under IAS 36 (IFRS), an impairment loss is determined as the amount by which the carrying amount exceeds the recoverable amount. Specifically, the recoverable amount is the higher of an asset's fair value, less costs to sell and its value in use. On the other hand, the value in use is estimated based on the present value of the expected future cash flows.

Conversely, U.S. GAAP separates the assessment of recoverability from the actual measurement of an impairment loss. For a group of assets, the carrying amount is considered non-recoverable if it is higher than the undiscounted future cash flows expected from those assets. When this is the case, the impairment loss is calculated as the difference between the asset's fair value and carrying amount.

Example: Impairment Analysis of Property, Plant, and Equipment

Arbor Industries, a hypothetical company, specializes in the manufacturing of eco-friendly packaging materials. Following a surge in competitive products that are both cheaper and more durable, Arbor has observed a significant downturn in sales. The company's management has collected the following financial data related to one of their key manufacturing machine:

Parameter	Value
Carrying Amount	AUD 120,000
Undiscounted Expected Future Cash Flows	AUD 100,000
Present Value of Expected Future Cash Flows	AUD 90,000
Fair Value if Sold	AUD 95,000
Costs to Sell	AUD 5,000

Under IFRS and US GAAP, what would the company report for the manufacturing machine?

Solution:

Under IFRS:

Arbor Industries must determine the recoverable amount by comparing the carrying amount

(AUD 120,000) with the higher of two figures: the fair value less costs to sell (AUD 90,000) and the value in use (AUD 90,000).

$$\begin{aligned}\max(\text{Carrying Amount}, [\text{Fair value} - \text{Costs to sell}]) &= \max(120{,}000, [95{,}000 - 5{,}000]) \\ &= \text{AUD } 120{,}000\end{aligned}$$

Here, both figures are the same and lower than the carrying amount. Therefore, an impairment loss of AUD 30,000 would be recognized, bringing down the carrying amount to AUD 90,000.

$$\begin{aligned}\text{Impairment Loss Calculation} &= \text{Carrying Amount - Higher of Fair Value} \\ &\quad \text{Less Costs to Sell or Value in Use} \\ &= \text{AUD } 120{,}000\text{-AUD } 90{,}000 \\ &= \text{AUD } 30{,}000\end{aligned}$$

This loss would be recorded in the income statement, and Arbor Industries would need to revise the depreciation schedule based on the new carrying amount.

Under US GAAP:

Under US GAAP, the focus would be on comparing the carrying amount (AUD 120,000) with the undiscounted expected future cash flows (AUD 100,000). Since the undiscounted cash flows are less than the carrying amount, an impairment is confirmed. The impairment loss is calculated by comparing the carrying amount to the fair value:

$$\begin{aligned}\text{Impairment Loss Calculation} &= \text{Carrying Amount - Fair Value} \\ &= 120{,}000\text{-}95{,}000 \\ &= \text{AUD } 25{,}000\end{aligned}$$

This loss would be recognized in the income statement, reducing the asset's carrying amount to AUD 95,000 (Fair Value) on the balance sheet.

Impairment of Finite Life Intangible Assets

Intangible assets that have a finite lifespan are amortized, leading to a gradual reduction in their value over time. These assets may also face impairment. As with physical assets like property and equipment, intangible assets are not assessed for impairment annually, and as such

assessment only occurs when significant events warrant it.

The company evaluates if any substantial events that indicate potential impairment have arisen by the conclusion of each reporting period. Such events might involve a noteworthy drop in market value or a significant adverse shift in legal or economic circumstances. Accounting for impairment in intangible assets of finite life mirrors that of tangible assets. An impairment loss lessens the asset's recorded value on the balance sheet, reducing net income on the income statement.

Impairment of Indefinite Life Intangibles

Intangible assets of an indefinite lifespan are not subject to amortization. They're recorded on the balance sheet at historical cost and are evaluated for impairment at least once a year. Impairment occurs if the carrying amount exceeds the asset's fair value.

Impairment of Long-Lived Assets Held for Sale

When management intends to sell a long-lived asset and its sale is highly likely, the asset is reclassified as “held for sale” instead of “held for use.” This reclassification requires the asset to be immediately sale-ready in its current state. For instance, if a company plans to sell a building it no longer requires and meets the accounting criteria, the building is reclassified from property, plant, and equipment to non-current assets held for sale.

Upon reclassification, assets previously held for use undergo an impairment test. If, upon reclassification, the carrying amount is higher than the fair value less selling costs, an impairment loss is recognized. The asset's value is then written down to fair value minus selling costs. Assets held for sale are no longer subject to depreciation or amortization.

Reversals of Impairments of Long-Lived Assets

After an impairment loss has been recognized for an asset, circumstances might change such that the asset's recoverable amount increases. For example, the outcome of a successful appeal in a patent infringement lawsuit could raise the recoverable amount of a previously devalued

patent.

Under IFRS, there is an allowance for the reversal of impairment losses if the recoverable amount of an asset improves, irrespective of whether the asset is held for use or sale. It is important to note that IFRS only permits the reversal of impairment losses; it does not allow the recoverable amount to be revalued above the original carrying amount if it exceeds it.

Conversely, US GAAP treat the reversal of impairment differently based on the classification of the asset. For assets classified as held for use, any impairment loss recognized cannot be reversed. This means once the value of such an asset is reduced due to impairment, it cannot be subsequently increased. However, for assets classified as held for sale, reversals are permitted if the fair value of the asset increases following the impairment loss.

Derecognition

When a company derecognizes an asset, it removes it from the financial statements. This happens when the asset is no longer expected to deliver future benefits through use or disposal. The derecognition of a long-lived operating asset can occur through sale, exchange, abandonment, or distribution to existing shareholders.

Recall that non-current assets that management plans to sell or distribute to shareholders and which are immediately available for sale in their current condition and where a sale is highly probable are categorized as non-current assets held for sale.

Derecognition by Sale

When an asset is derecognized through selling, the profit or loss from the sale of long-lived assets is calculated by subtracting the asset's carrying amount at the time of sale from the sales proceeds. Typically, an asset’s carrying amount is its net book value, which is its historical cost less any accumulated depreciation. However, this amount may be adjusted to account for any impairment or revaluation of the asset.

A gain or loss from the sale of an asset is reported on the income statement, either integrated

with other gains and losses or as a distinct line item if the amount is substantial.

Derecognition Other than by Sale

Long-lived assets intended for disposal through means other than sale (abandonment, exchange for another asset, or distribution to owners in a spin-off) are classified as held for use until they are disposed of or until they meet the criteria to be reclassified as held for sale or for distribution. As such, these assets continue to be depreciated and are subject to impairment testing, similar to other long-lived assets owned by the company, unless their carrying amount reaches zero.

When an asset is retired or abandoned, the accounting treatment is akin to that of a sale, except that no cash proceeds are recorded. The asset is removed from the books at its carrying amount at the time of retirement or abandonment, and a loss equal to this carrying amount is recognized.

In the case of an asset exchange, the accounting involves removing the carrying amount of the asset that is given up, recognizing the fair value of the asset received, and recording any difference between the carrying amount and the fair value as a gain or loss. The fair value of the asset given up is generally used unless the fair value of the asset received is more clearly evident. If there is no reliable measure of fair value, the acquired asset is recorded at the carrying amount of the asset given up.

A gain is recognized if the fair value of the newly acquired asset exceeds the carrying amount of the asset given up. Conversely, a loss is recognized if the fair value of the newly acquired asset is less than the carrying amount of the asset given up. If the acquired asset is valued at the carrying amount of the given-up asset due to the absence of a reliable, fair value, no gain or loss is recognized.

Question

Which of the following statements is the *most* accurate?

A. Impairment losses reduce the carrying amount of assets and increase the net income reported on the income statement.
B. If revaluation increases an asset's carrying amount, the increase in the asset's value will appear as a gain on the income statement.
C. When an asset is retired, the carrying amount is removed from the balance sheet, and a loss (or gain) is recorded for the difference between the carrying amount and any proceeds received from the disposal of the asset.

Solution

The correct answer is **C.**

When an asset is retired or sold, its carrying amount is removed from the balance sheet, and any difference between the carrying amount and the proceeds from the disposal is recorded as a gain or loss in the income statement.

A is incorrect. Impairment losses reduce the carrying amount of assets and decrease, **not** increase, the net income reported on the income statement.

B is incorrect. Under IFRS, increases in the carrying amount from revaluation are generally recognized in other comprehensive income and accumulated in equity under the heading of revaluation surplus, not as a gain in the income statement (unless it reverses a previous revaluation decrease that was recognized in profit or loss).

LOS 7c: analyze and interpret financial statement disclosures regarding property, plant, and equipment and intangible assets

Users of financial statements can use financial statement disclosures to deepen their understanding of a company's investments in tangible and intangible assets. Financial statement disclosures divulge such details as how those investments have changed during a reporting period, how the changes have affected the company's current financial performance, and the implications the changes might have on the company's expected future performance.

Under IFRS

Under IFRS, companies must disclose for each class of property, plant, and equipment the basis of measurement, depreciation methods, useful lives or depreciation rates, the gross carrying amounts, and the accumulated depreciation at both the start and end of the period. Additionally, companies must provide a reconciliation of the carrying amounts from the beginning to the end of the period.

Further disclosures required include any restrictions on title, pledges of property, plant, and equipment as security, and contractual obligations to acquire such assets. If the revaluation model is adopted, details such as the date of revaluation, how the fair value was determined, the carrying amount under the cost model, and any revaluation surplus must be reported.

Companies must also disclose the depreciation expense for the period, the balances of major classes of depreciable assets, total accumulated depreciation, and a general description of the depreciation methods applied.

For intangible assets under IFRS, companies need to state whether the useful lives are indefinite or finite. For assets with finite lives, disclosures should include the amortization methods, useful lives or amortization rates, the gross carrying amount, and accumulated amortization at the beginning and end of the period, including a reconciliation of these amounts. Where amortization affects the income statement, this must be indicated. For assets with indefinite lives, the carrying amount and the rationale for classifying the life as indefinite should be disclosed.

Similar to tangible assets, information on any restrictions, security interests, and future acquisition agreements of intangible assets is required. If using the revaluation model, the same details as tangible assets should be disclosed regarding fair value assessment and surplus.

Under US GAAP

Under US GAAP, companies must provide the gross carrying amounts and accumulated amortization for intangible assets both in total and by major class, the total amortization expense for the period, and the expected amortization expense for the next five fiscal years.

Disclosure requirements for impairment losses also vary between IFRS and US GAAP. Under IFRS, companies must report the amounts of impairment losses and reversals by asset class, including where these are recognized in the financial statements. They should also aggregate the main asset classes affected by impairments and reversals, and describe the key events and circumstances leading to these losses and reversals.

Under US GAAP, where impairment losses are not reversible for assets held for use, companies must describe the impaired asset, the cause of impairment, the method of fair value determination, the amount of the impairment loss, and its recognition in the financial statements.

How do Disclosures Appear on Financial Statements?

Financial statement disclosures concerning long-lived assets include their carrying values on the balance sheet, while the income statement may show depreciation expenses either separately or integrated depending on whether a 'nature of expense' or 'function of expense' method is used. The statement of cash flows, especially when prepared using the indirect method, typically includes depreciation or amortization as an adjustment to reconcile net income to cash flow from operations.

Notes to the financial statements detail the company's accounting methods, estimated useful life ranges, historical cost by main asset category, accumulated depreciation, and annual depreciation expense.

Applying Disclosures in Analysis

Ratios utilized in analyzing fixed assets include the fixed asset turnover ratio and various asset age ratios.

Fixed Asset Turnover Ratio

The fixed asset turnover ratio, calculated as follows:

$$\text{Fixed asset turnover ratio} = \frac{\text{Total Revenue}}{\text{Average net fixed assets}}$$

Intuitively, from the above formula, the fixed asset turnover ratio measures the relationship between total revenues and investment in property, plant, and equipment (PPE). As such, a higher ratio indicates that a company executes more sales with a given amount of investment in fixed assets, often interpreted as a sign of greater efficiency.

Asset Age Ratios

Asset age ratios generally depend on the relationship between historical cost and depreciation. Under IFRS's revaluation model, this relationship may differ when carrying amounts significantly diverge from depreciated historical costs, as such we apply the age ratios to PPE reported under the cost model.

Two important asset age ratios are asset age and remaining useful life. Age ratios indicate a company's need to reinvest in productive capacity. Older assets and shorter remaining lives suggest a greater need for reinvestment.

The Average Age of a company's asset base is approximated as:

$$\text{Average Age of a company's asset base} = \frac{\text{Accumulated depreciation}}{\text{Depreciation expense}}.$$

On the other hand, the average remaining life of a company's asset base is estimated as:

$$\text{Net PPE}$$

$$\text{Average Remaining life of a company's asset base} = \frac{\text{Net PPE}}{\text{depreciation expense}}.$$

The average age and average remaining life ratio estimates reflect the relationships for assets accounted for on a historical cost basis:

$$\text{Net PPE} = \text{Total historical cost} - \text{Accumulated depreciation}$$

Moreover, under straight-line depreciation:

$$\text{Annual depreciation expense} = \frac{\text{Total historical cost} - \text{Salvage value}}{\text{Estimated useful life}}$$

In summary, assuming straight-line depreciation and no salvage value, the following relationships suffice:

$$\begin{aligned}
\text{Estimated Total Useful Life} &= \text{Time elapsed since purchase (age)} + \text{Estimated remaining life} \\
\text{Estimated Total Useful Life} &= \frac{\text{Historical Cost}}{\text{Annual Depreciation}} \\
\text{Historical Cost} &= \text{Accumulated Depreciation} + \text{Net PPE}
\end{aligned}$$

Conversely,

$$\begin{aligned}
\text{Estimated Total Useful Life} &= \text{Estimated Age of Equipment} + \text{Estimated Remaining Life} \\
\frac{\text{Historical cost}}{\text{Annual depreciation expense}} &= \frac{\text{Accumulated depreciation}}{\text{Annual depreciation expense}} + \frac{\text{Net PPE}}{\text{Annual depreciation expense}}
\end{aligned}$$

Accurately making the above approximations is challenging due to the use of various depreciation methods, different asset useful lives and salvage values, and the presence of fully depreciated assets. Moreover, fixed asset disclosures tend to be general, making precise estimates challenging but useful for identifying areas needing further investigation.

Comparing annual capital expenditures to annual depreciation expenses provides a general indication of whether a company maintains its productive capacity. This comparison indicates the

rate at which PPE is being replaced relative to the rate at which it is being depreciated.

Question 1

Assuming that the historical cost of PPE for companies ABC and XYZ are the same, and the companies use the same depreciation method, consider the following information on their PPE:

Estimates	Company ABC	Company XYZ
Estimated total useful life (years)	10.4	21.3
Estimated age (years)	5.7	11.0
Estimated remaining life (years)	4.7	9.4

Which of the following statements is the *least* accurate?

A. The estimates suggest over 50% of each company's useful life has passed.
B. The estimated age of the equipment suggests that company ABC has newer PPE than company XYZ.
C. The estimated total useful life suggests that company XYZ depreciates PPE over a much shorter period than company ABC.

Solution

The correct answer is **C.**

The estimated total useful life suggests that company ABC depreciates PPE over a much longer (not shorter) period than company XYZ. The estimated total useful life of PPE is the total historical cost of PPE divided by annual depreciation expense. If the historical cost of both companies' PPE is the same, and they use the same depreciation method, then the company with the lower estimated total useful life – company ABC – must have a higher depreciation expense, which would stem from the choice to depreciate PPE over a shorter period than company XYZ.

Question 2

XYZ company follows a straight-line depreciation method and reports the information below for its production machines:

Annual depreciation expense: $50,000;

accumulated depreciation expense: $200,000;

carrying value: $650,000.

What is the machines' estimated remaining useful life, and how long has the company held them?

A. The remaining useful life is five years, and the company has held the machines for three years.
B. The remaining useful life is eight years, and the company has held the machines for four years.
C. The remaining useful life is 13 years, and the company has held the machines for four years.

Solution

The correct answer is **C.**

$$\begin{aligned}\text{Remaining useful life} &= \frac{\text{Asset's carrying value}}{\text{Annual depreciation expense}} \\ &= \frac{\$650,000}{\$50,000} \\ &= 13 \text{ years}\end{aligned}$$

$$\begin{aligned}\text{Asset's holding period} &= \frac{\text{Accumulated depreciation expense}}{\text{Annual depreciation expense}} \\ &= \frac{\$200,000}{\$50,000} \\ &= 4 \text{ years}\end{aligned}$$