

AN ACCOUNTING APPROACH FOR INTANGIBLE INVESTMENTS

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OUTLINE

- What are intangibles?
- Potted history of accounting
- What has been done
- What should be done

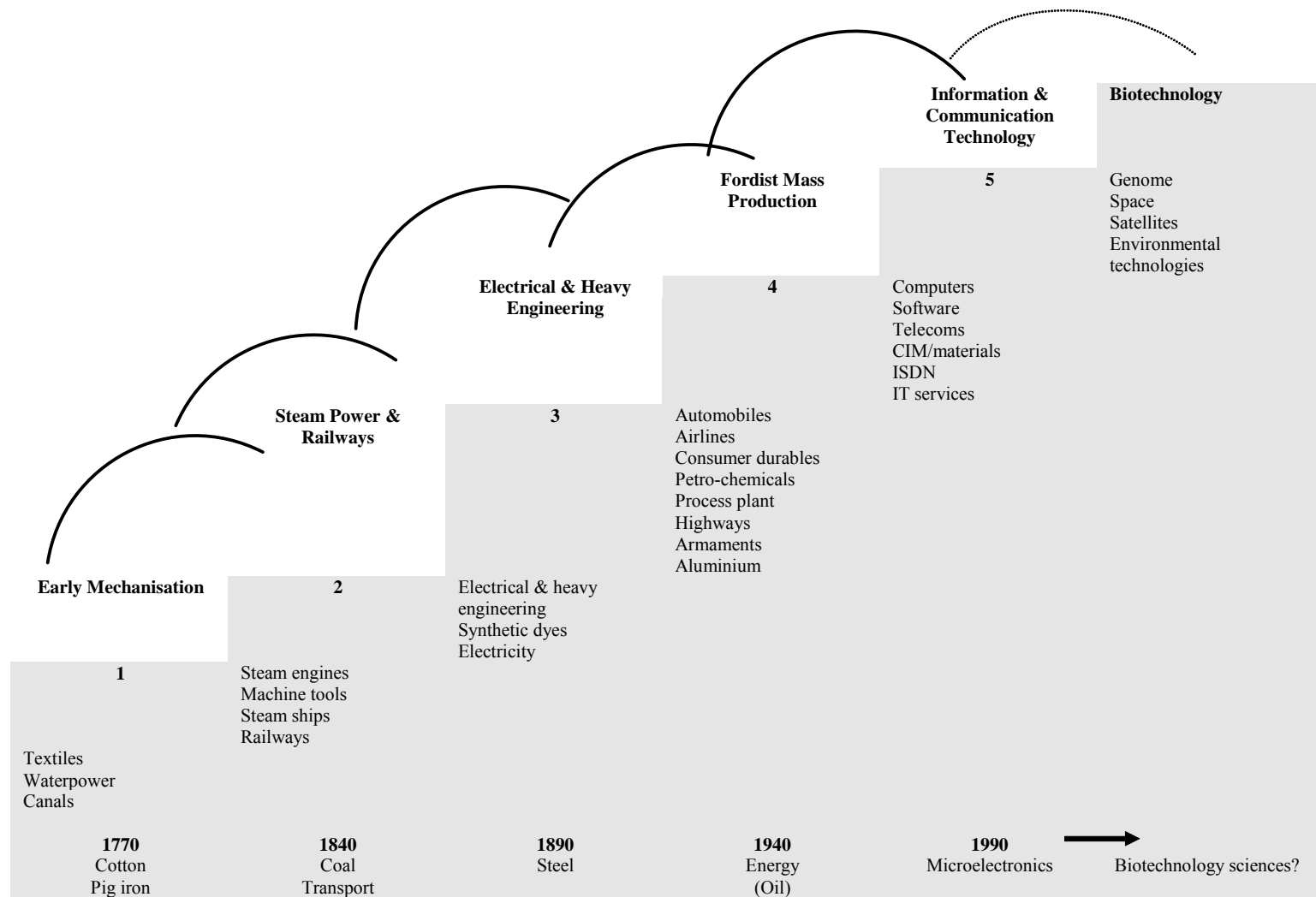
WHAT ARE INTANGIBLES?

- Capital = assets = stored up value
 - required before production starts
 - to be converted into products in the future
- Capital = Σ past investment less depreciation
- Capital = tangibles + intangibles
- Intangibles = can't feel or touch
- Intangible investment often in people, not embodied in matter
- I.e. Investment into skills of workforce
 - Investment into new products and processes
 - Investment into new technologies and information infrastructure
 - Investment into brand development and channels of distribution
 - Investment into forms of work organisation

- Why are they valuable?
 - For companies: to compete (reduce costs, source new markets, develop new products)
 - For society: enhance welfare (cure disease, increase food yields, reduce greenhouse gases, monitor corporate behaviour)

POTTED HISTORY

- Accounting set out by Luca Pacioli in 1494
- Principles of asset accounting are little changed today
- *Mercantile capitalism*: Capital = raw materials & wages
- Little plant & equipment except shipping & mining
- *Industrial capitalism*: Capital = physical equipment
- Depreciation, maintenance, overhead costs became important
- *20th century onwards*: Capital = tangible & **intangible** assets (i.e. capabilities)



Source: Adapted from Dodgson and Marceau (2000) and *Shaping Australia's Future: Innovation – Framework Paper* (Department of Industry, Science and Resources 2000)

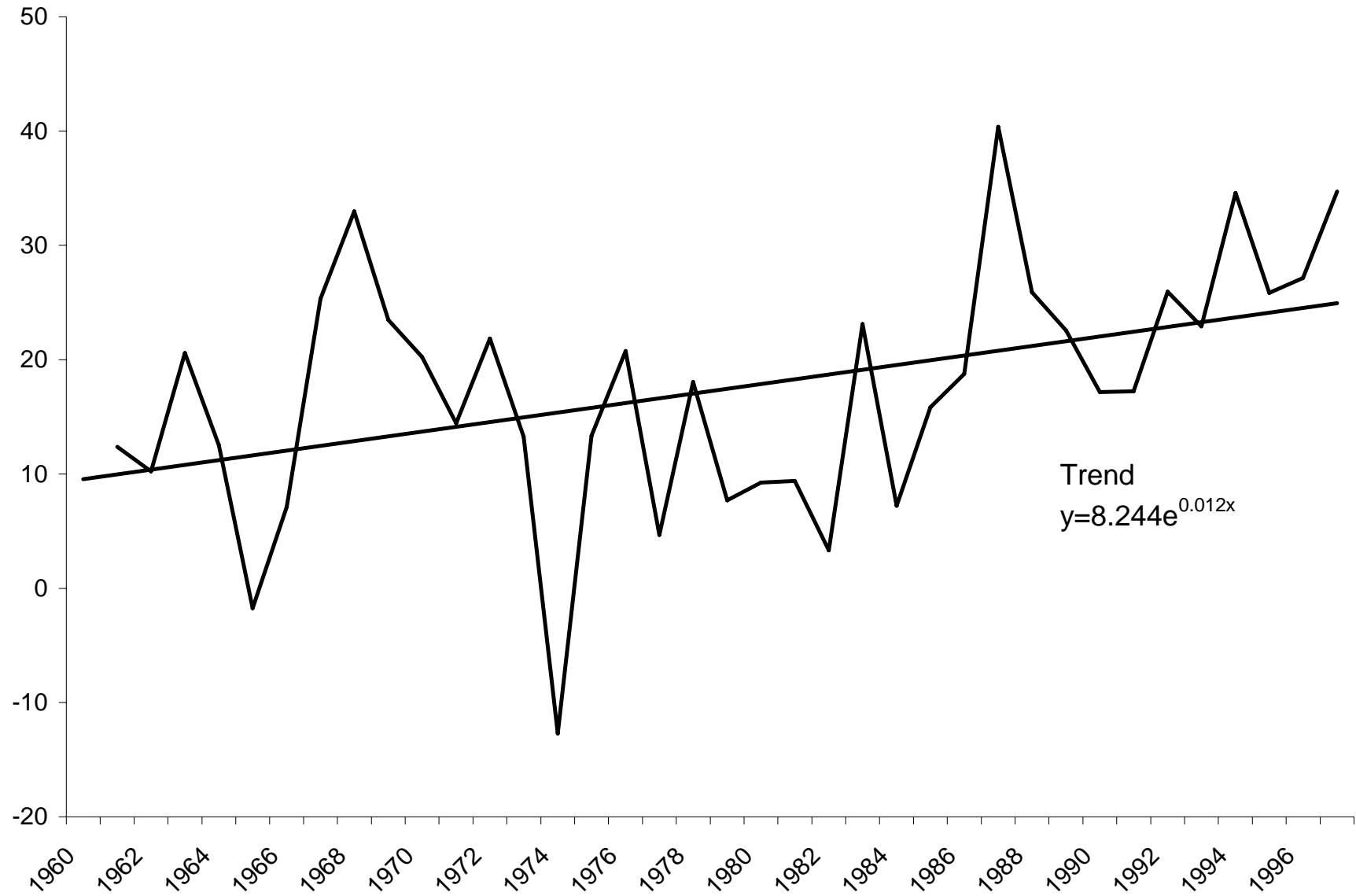
TRADITIONAL ACCOUNTING MODEL

- Current accounting model inherited from these early times
- Expenses most intangible “investments” and lumps together
 - Uncertain, non-separable, non-transferable, poor control
 - Confused about what an investment is
- Economics definition : all outlays made in expectation of future benefits (Irving Fisher 1930)
- Accountants thought this meant **tangibility** b/c makes existence easy to identify
- But the original meaning of investment & capital has been lost in the efforts to codify it
- Confusion over the role of uncertainty, separability, transferability & control

WHY TRY TO MEASURE INTANGIBLE INVESTMENT?

- As a source of value its increasing
 - Hard to rigorously show b/c we don't measure it properly
 - 2nd best empirical methods indicate value increasing (missing gap in accounting data; direct company surveys; econometric modelling)

INTANGIBLE ASSETS AS % TOTAL ASSETS IN AUSTRALIA, LISTED COMPANIES



CURRENT ACCOUNTING PRACTICES

- Accounting no longer tells us how much investment expenditure is occurring
- Until we know this we cannot estimate a rate of return
 - ⇒ Managers make investment decision without consistent, timely information
 - ⇒ External investors and analysts kept in dark
 - ⇒ Regulators and policy makers uninformed

KEY QUESTIONS CANNOT BE ADDRESSED

- What (if any) are the key generic categories of expenditures on intangible investment?
- What is the rate of return to different categories of intangible investment expenditures?
- How do these forms of investment fit into the value creation process?
- How robust is the assumed lines of causation between specific intangible inputs to and outputs from production?
- What types of intangible investment interact with tangible investment to create synergies for the firm?

HOW HAS BUSINESS RESPONDED TO THE INFORMATION VACUUM?

- “Intellectual capital” consultants and academics working on plethora of company specific, unregulated measures (see attached Table)
- No common terminology
- No common framework
- Not clear what analytic role each metric has (what equation or model is it to be used for?)
- Metrics uninterpretable : mix of cost and value concepts
- Expensive to collect and not necessarily consistent over time
- Can't be used to estimate a rate of return

MOST EFFICIENT WAY TO COLLECT THIS INFORMATION IS THROUGH THE REGULATED ACCOUNTING SYSTEM

- Needs to be supported by accounting standards so all businesses follow same concepts across industries and over time.
- Current accounting rules bear little relation to Fisher's conception of investment:
 - Most intangible investment is included in cost of goods sold or other operating expenses
 - **No disaggregated information about amount/type of intangible investment**

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ANNUAL FINANCIAL REPORT FOR THE YEAR ENDED 30 JUNE 2006

Income Statement

Year Ended 30 June 2006

	Note	2006 \$	2005 \$
Revenue from provision of services	2	10,381,128	11,248,166
Other Income	3	263,996	163,846
Total revenue		10,645,124	11,412,012
Personnel expenses	4	(5,198,184)	(3,798,835)
Consultancy expenses		(264,945)	(258,910)
Depreciation and Amortisation expenses		(231,746)	(430,572)
Information services		(2,419,834)	(3,450,714)
Project expenses		(762,040)	(1,826,282)
Marketing Expenses		(355,777)	(217,907)
Travel and Accommodation expenses		(560,989)	(420,713)
Administration expenses		(1,191,350)	(770,313)
Profit / (Loss) before financing costs		(339,741)	237,766
Financial Income	6	164,634	198,714
Financial Expenses		-	-
Net financing costs		164,634	198,714
Profit / (Loss) for the year		(175,107)	436,480

The Income Statement is to be read in conjunction with the notes to and forming part of the financial statements set out on pages 11 to 22.

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ANNUAL FINANCIAL REPORT FOR THE YEAR ENDED 30 JUNE 2006

Balance Sheet

As at 30 June 2006

	Note	2006 \$	2005 \$
Current Assets			
Cash	7	3,456,307	4,284,305
Trade and other receivables	8	645,091	770,745
Total Current Assets		4,101,398	5,055,050
Non-Current Assets			
Property, Plant and Equipment	9	561,497	628,428
Total Non-Current Assets		561,497	628,428
Total Assets		4,662,895	5,683,478
Current Liabilities			
Trade and other payables	10	902,509	1,618,962
Provisions	11	302,177	353,459
Income in Advance		1,776,625	1,982,140
Total Current Liabilities		2,981,311	3,954,561
Non-Current Liabilities			
Provisions	11	201,937	74,163
Total Non-Current Liabilities		201,937	74,163
Total Liabilities		3,183,248	4,028,724
Net Assets		1,479,647	1,654,754
Accumulated Funds			
Retained Profits		1,479,647	1,654,754
Total Accumulated Funds		1,479,647	1,654,754

The Balance Sheet is to be read in conjunction with the notes to and forming part of the financial statements set out on pages 11 to 22.

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ANNUAL FINANCIAL REPORT FOR THE YEAR ENDED 30 JUNE 2006

Statement of Cash Flows

Year Ended 30 June 2006

	Notes	2006 \$	2005 \$
Cash flows from operating activities			
Cash receipts in the course of operations		8,925,547	8,544,118
Cash payments in the course of operations		(11,351,838)	(10,152,906)
Interest received		164,634	198,714
Net Cash provided by/(used in) operating activities	16	(2,261,657)	(1,410,074)
Cash flows from investing activities			
Payments for Property, Plant and Equipment		(164,816)	(310,921)
Proceeds from sale of Property, Plant and Equipment		14,725	25,000
Net Cash provided by/(used in) investing activities		(150,091)	(285,921)
Cash flows from financing activities			
Membership fees received		1,583,750	1,583,750
Net Cash provided by financing activities		1,583,750	1,583,750
Net increase / (decrease) in Cash held		(827,998)	(112,245)
Cash at beginning of financial year		4,284,305	4,396,550
Cash at end of financial year		3,456,307	4,284,305

The Statement of Cash Flows is to be read in conjunction with the notes to and forming part of the financial statements set out pages 11 to 22.

ADVANCED NANOTECHNOLOGY LIMITED

ANNUAL FINANCIAL REPORT FOR THE YEAR ENDED 30 JUNE 2006

INCOME STATEMENT

For the year ended 30 June 2006

	Notes	CONSOLIDATED		PARENT	
		2006	2005	2006	2005
		\$	\$	\$	\$
Continuing operations					
Revenue	4(a)	3,072,446	1,750,343	3,072,018	1,749,323
Cost of goods sold		(2,205,676)	(1,404,761)	(2,342,640)	(1,473,125)
Gross profit		<u>866,770</u>	<u>345,582</u>	<u>729,378</u>	<u>276,198</u>
Other income	4(b)	96,195	70,130	34,574	37,492
Labour and personnel expenses	4(c)	(2,332,061)	(1,890,856)	(2,331,710)	(1,870,135)
Travel and related expenses		(124,594)	(116,558)	(124,594)	(116,558)
Occupancy expenses		(121,273)	(263,488)	(69,584)	(243,928)
Other operating costs		(60,248)	(328,273)	(60,237)	(328,273)
Corporate overheads		(454,547)	(471,685)	(452,688)	(477,825)
Sales and marketing expenses		(81,148)	(30,170)	(81,148)	(30,170)
Depreciation and amortisation	4(d)	(861,689)	(708,214)	(447,005)	(519,465)
Other expenses		(57,245)	(35,978)	(395,069)	(51,336)
Finance costs	4(e)	(26,019)	(27,544)	(26,019)	(27,473)
Share of loss of joint venture		-	(116,824)	-	(116,824)
(Loss) before income tax		<u>(3,155,859)</u>	<u>(3,573,878)</u>	<u>(3,224,102)</u>	<u>(3,468,297)</u>
Income tax expense		-	-	-	-
(Loss) after tax from continuing operations		<u>(3,155,859)</u>	<u>(3,573,878)</u>	<u>(3,224,102)</u>	<u>(3,468,297)</u>
Net (loss) attributable to members of parent		<u>(3,155,859)</u>	<u>(3,573,878)</u>	<u>(3,224,102)</u>	<u>(3,468,297)</u>
(Loss) per share (cents per share)	6				
- basic for (loss) for the year		(1.88)	(2.64)	(1.92)	(2.57)
- diluted for (loss) for the year		(1.88)	(2.64)	(1.92)	(2.57)
- dividends paid per share		Nil	Nil	Nil	Nil

The above Income Statement should be read in accordance with the accompanying notes.

ADVANCED NANOTECHNOLOGY LIMITED

ANNUAL FINANCIAL REPORT FOR THE YEAR ENDED 30 JUNE 2006

BALANCE SHEET

As at 30 June 2006

	Notes	CONSOLIDATED		PARENT	
		2006	2005	2006	2005
		\$	\$	\$	\$
ASSETS					
Current Assets					
Cash and cash equivalents	7	5,718,870	8,405,549	5,690,781	8,377,381
Trade and other receivables	8	504,286	448,861	599,137	639,352
Inventories	9	277,788	360,297	277,788	360,297
Prepayments	10	17,085	25,671	16,317	9,171
Other financial assets	11	36,971	22,272	36,971	15,826
Total Current Assets		6,555,000	9,262,650	6,620,994	9,402,027
Non-Current Assets					
Other financial assets	12	261,535	261,585	261,535	261,585
Investment in controlled entity	13	-	-	2,269,597	2,578,594
Property, plant and equipment	14	1,706,009	1,680,892	1,424,333	1,199,144
Intangible assets	15	6,669,146	7,066,217	4,492,327	4,707,325
Total Non-Current Assets		8,636,690	9,008,694	8,447,792	8,746,648
TOTAL ASSETS		15,191,690	18,271,344	15,068,786	18,148,675
LIABILITIES					
Current Liabilities					
Trade and other payables	17	172,896	170,859	171,488	167,686
Interest bearing loans and borrowings	18	33,317	33,317	33,317	33,317
Provisions	19	176,533	135,944	176,533	135,944
Deferred income	20	53,463	158,543	-	90,060
Other liabilities	20	266,215	255,927	277,621	262,709
Total Current Liabilities		702,424	754,590	658,959	689,716
Non-Current Liabilities					
Interest bearing loans and borrowings	18	211,873	245,190	211,873	245,190
Provisions	19	102,353	79,722	102,353	79,722
Deferred income	20	116,777	163,376	-	-
Total Non-Current Liabilities		431,003	488,288	314,226	324,912
TOTAL LIABILITIES		1,133,427	1,242,878	973,185	1,014,628
NET ASSETS		14,058,263	17,028,466	14,095,601	17,134,047
Equity					
Issued capital	21	28,012,445	28,024,049	28,012,445	28,024,049
Option premium reserve	21	337,253	139,993	337,253	139,993
Accumulated losses	21	(14,291,435)	(11,135,576)	(14,254,097)	(11,029,995)
Parent Interests		14,058,263	17,028,466	14,095,601	17,134,047
TOTAL EQUITY		14,058,263	17,028,466	14,095,601	17,134,047

The above Balance Sheet should be read in accordance with the accompanying notes.

ADVANCED NANOTECHNOLOGY LIMITED

ANNUAL FINANCIAL REPORT FOR THE YEAR ENDED 30 JUNE 2006

CASH FLOW STATEMENT

For the year ended 30 June 2006

	Notes	CONSOLIDATED		PARENT	
		2006	2005	2006	2005
		\$	\$	\$	\$
Cash flows from operating activities					
Receipts from customers		2,445,582	1,347,654	2,447,765	1,347,654
Payments to suppliers and employees		(4,735,189)	(4,998,717)	(4,771,582)	(5,016,649)
Receipt of government grants		34,574	37,492	34,574	37,492
Interest received		380,328	239,445	379,900	238,755
Borrowing costs		(26,019)	(28,104)	(26,019)	(27,473)
Net cash (outflows) from operating activities	7	<u>(1,900,724)</u>	<u>(3,402,230)</u>	<u>(1,935,362)</u>	<u>(3,420,221)</u>
Cash flows from investing activities					
Purchase of property, plant and equipment		(470,364)	(838,610)	(471,950)	(838,610)
Purchase of patents and trademarks		(273,998)	(50,784)	(237,695)	(50,784)
Investment in joint venture		-	(33,370)	-	(33,370)
Cash acquired on acquisition of subsidiary		-	10,177	-	-
Repayment of loan to related party		-	(120,000)	-	(120,000)
Proceeds from sale of property, plant and equipment		-	18,183	-	18,183
Net cash (outflows) from investing activities		<u>(744,362)</u>	<u>(1,014,404)</u>	<u>(709,645)</u>	<u>(1,024,581)</u>
Cash flows from financing activities					
Payment of security deposit		-	(95,000)	-	(95,000)
Proceeds from issues of shares and other equity securities		-	11,500,721	-	11,500,721
Transaction costs of issue of shares		(11,604)	(944,172)	(11,604)	(944,172)
Repayment of borrowings		(33,317)	(57,015)	(33,317)	(57,015)
Net cash (outflows)/inflows from financing activities		<u>(44,921)</u>	<u>10,404,534</u>	<u>(44,921)</u>	<u>10,404,534</u>
Net (decrease)/increase in cash and cash equivalents held		<u>(2,690,007)</u>	<u>5,987,900</u>	<u>(2,689,928)</u>	<u>5,959,732</u>
Cash and cash equivalents at the beginning of the year		8,405,549	2,435,518	8,377,381	2,435,518
Exchange rate adjustment		3,328	(17,869)	3,328	(17,869)
Cash and cash equivalents at the end of the year	7	<u>5,718,870</u>	<u>8,405,549</u>	<u>5,690,781</u>	<u>8,377,381</u>

The above Cash Flow Statement should be read in accordance with the accompanying notes.

**CURRENT ACCOUNTING RULES ADMIT PURCHASED
INTANGIBLE ASSETS BUT DO NOT MEASURE TOTAL
INVESTMENT**

DEFINITION RULES (AASB 138)

Intangible asset ‘identifiable non-monetary asset without physical substance’

Must be:

(a) Identifiable: (i) separable (as in sold, transferred, licensed, rented or exchanged); or (ii) arises from contractual or other legal rights.

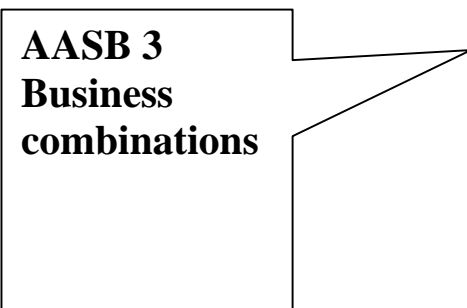
(b) Entity must expect future benefits and have Control: “the entity has the power to obtain the future benefits and restrict the access of others to those benefits.”

RECOGNITION RULES (AASB 138)

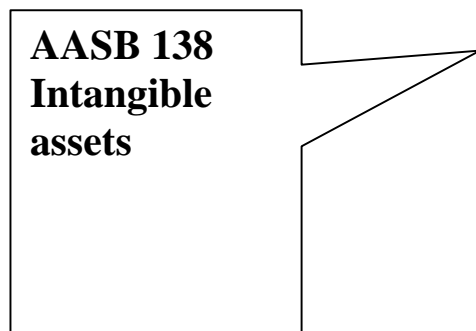
- Receipt of the future benefits must be probable (more than 50 percent)
- Asset must possess a cost that can be measured reliably.
- Most “reliable measure” comes from an market transaction
- Rules against recognition of internally produced intangible assets
- Difficult to control intangibles because often reside in people and therefore have no or weak property rights
- If an intangible asset cannot be recognised, the expenditure on the intangible investment is classified as an expense in one of the traditional expense categories
- Only “intangible” expense reported as a separate item in the accounts is R&D

•NEW IFRS ACCOUNTING STANDARDS

**AASB 3
Business
combinations**

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**AASB 138
Intangible
assets**

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NEW IFRS ACCOUNTING STANDARDS

- Acquired - meet asset recognition rules in AASB 138
 - separately acquired
 - acquired in a business combination
 - acquired by a government grant
 - exchanges of intangible assets
- Internally generated **goodwill** shall **not** be recognised as an asset
- All other internally generated expenditures are classified as **research** or **development** (AASB 138 para. 51, 52-67)

- Expenditure on **research** always an expense
 - Activities aimed at obtaining new knowledge;
 - Search for, evaluation, final selection of applications of research;
 - Search for alternatives for materials, devices, products, processes, systems or services; and
 - Formulation, design, evaluation, final selection of alternatives for new or improved materials, devices, products, processes, systems or services.
- **Development** may be an investment if satisfies 6 rules
 - Design, construction, testing of preproduction or pre-use prototypes
 - Design of tools, jigs, moulds and dies involved in new technology
 - Design, construction, operation of a pilot plant not of a scale economically feasible for commercial production
 - The design, construction and testing of a chosen alternative for new or improved materials, devices, products, processes or systems

Development expenditures must satisfy **SIX EXTRA RULES** before costs are classifiable as an asset

1. **Technical feasibility** of completing the intangible asset so that it will be available for use or sale;
2. **Intention to complete** the intangible asset and use or sell it;
3. **Ability to use or sell** the intangible asset;
4. **Know how the intangible asset will generate benefits** - demonstrate the existence of a market for the output of the asset or the intangible asset itself or, if it is to be used internally, the usefulness of the intangible asset;
5. **Adequate technical, financial and other resources** to complete the development and to use or sell the intangible asset; and
6. **Ability to measure reliably** the expenditure attributable to the intangible asset during its development.

RECOGNITION AS ASSETS STRICTLY PROHIBITED

- Internally generated brands
- Internally generated mastheads
- Internally generated publishing titles
- Internally generated customer lists
- Other internally generated items similar in substance (Para. 63)

ANOMALIES

- An expenditure on intangibles is investment if bought externally
BUT an expense if made in-house
- Buy a patent versus conduct R&D in-house
- Buy an ongoing firm versus build up goodwill yourself
- Selective coverage in the accounts
- In contrast to accounting, economists define **investment** as **any expenditure** that is not immediately embodied in physical matter, but which is intended to generate long-term benefits.

IN SUM: Precise but not accurate

- Current rules devised to minimise the cost of incorrectly classifying an expense as an investment
- But takes no account of the costs of incorrectly classifying an investment as an expense
- Classification as **intangible assets** is a difficult issue
 - Financial report is primary regulated information source
 - Reliable accounts give confidence to constituents
 - Accounting data used in debt and compensation contracts
- Informative disclosure shown to benefit intangible intensive entities: e.g., funding, cost of capital, supplier and customers

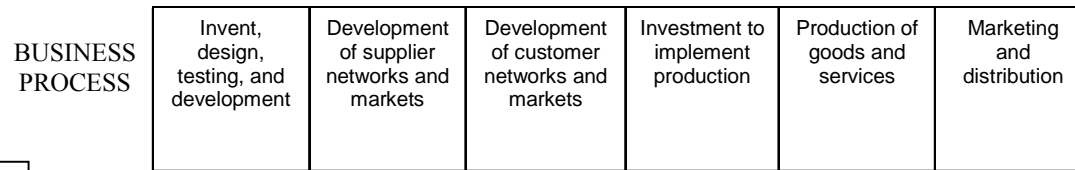
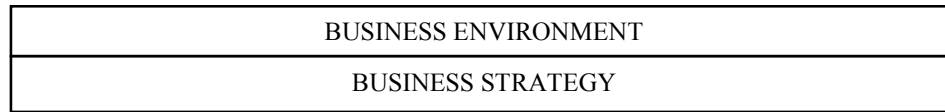
SUGGESTED APPROACH TO INCREASE INFORMATION ON INTANGIBLE INVESTMENT

- Focus on **identifying the expenditures** on intangible investment as the first order problem
 - Capitalisation versus expense issue important but secondary
 - Meaningful categories of **expenditures** required to compute rate of return
- Record expenditures (monies outlaid) not values – values are subjective and speculative
- Write the standards and rules to clearly define what generic **categories** of expenditures are reportable in the financial statements of all entities

- Use econometric tools to calculate the rate of return to each type of expenditure based on revenues

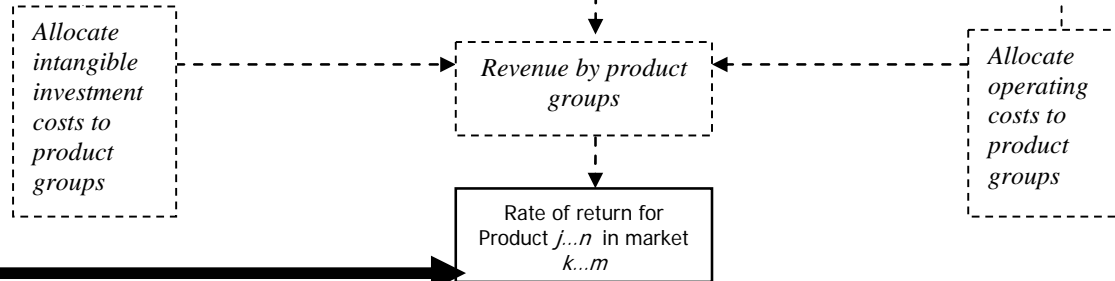
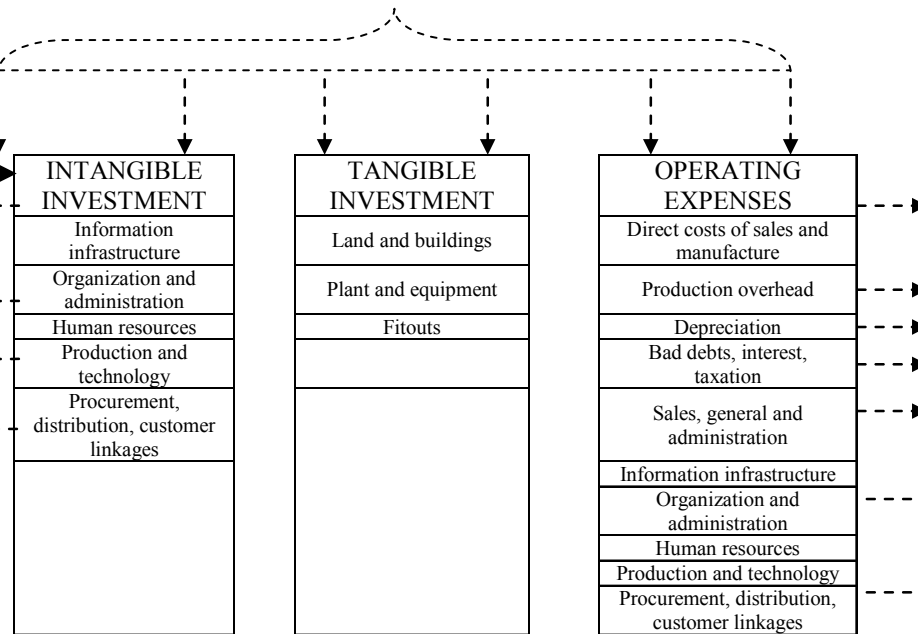
MEANINGFUL CATEGORIES OF EXPENDITURES – EXAMPLE

Information System Infrastructure	Wages of staff involved in information systems planning and development, Commercial enterprise systems, Software, databases, Other computer services, Licenses
Production and Technology	Product & process R&D, Process design, engineering and development, Quality control systems, Proprietary technology, patents, designs, licenses
Human Resources	Pay of HR managers Re-design of remuneration and incentive systems Staff development and longer-term training, Information and knowledge database development, Programs for health and motivation of workforce (eg: labour relations, health, fitness)
Organization and Administration	Wages of staff involved in organizational design and management techniques; Networks and strategic alliances, Administration structure and systems
Procurement, distribution, customer linkages	Distribution and market research systems Advertising, trademarks and brands Customer lists, subscribers' list, potential customer list, product and quality certification



Focus is on identifying expenditures on intangible investment

Goal of identifying expenditures is to compute rate of return

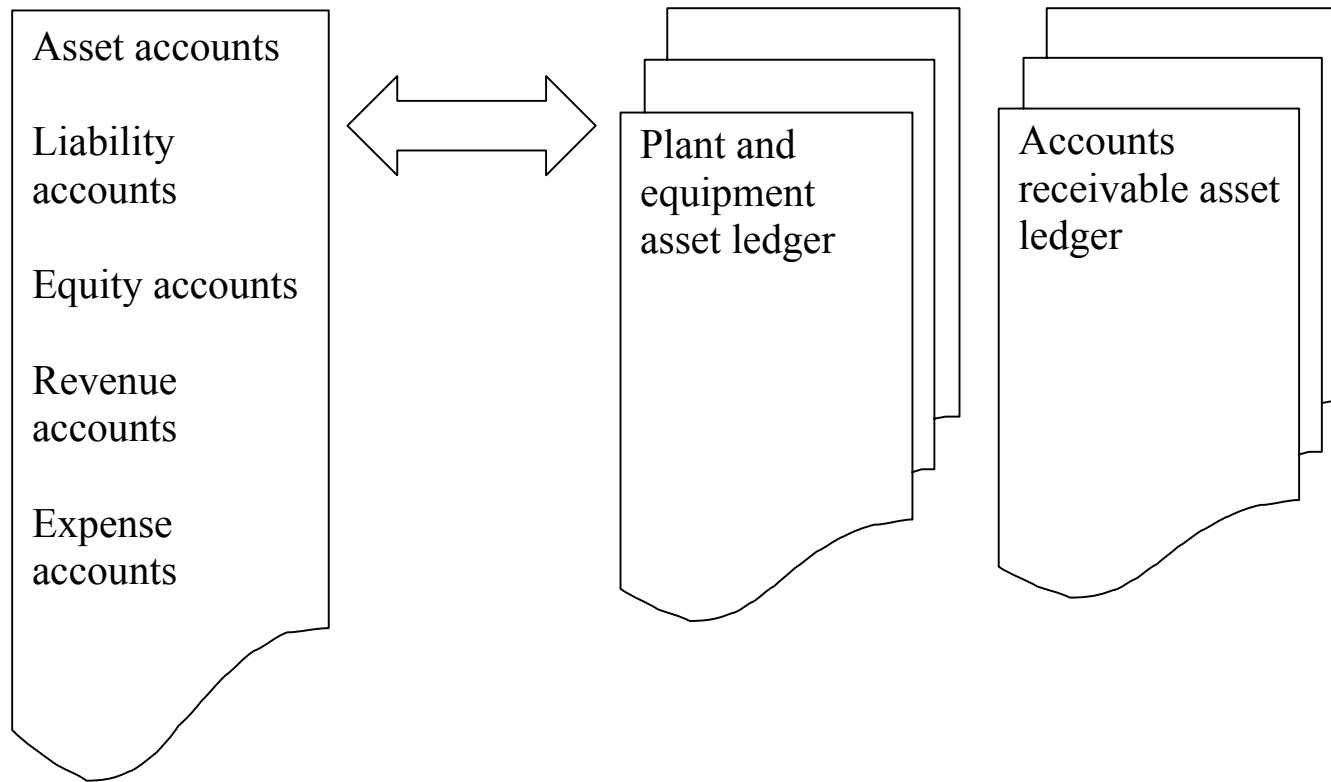


ENHANCEMENTS TO GENERAL LEDGER

General Ledger

**GENERAL
LEDGER**

**SUBSIDIARY
LEDGERS (ASSET,
EXPENSE, ETC.)**

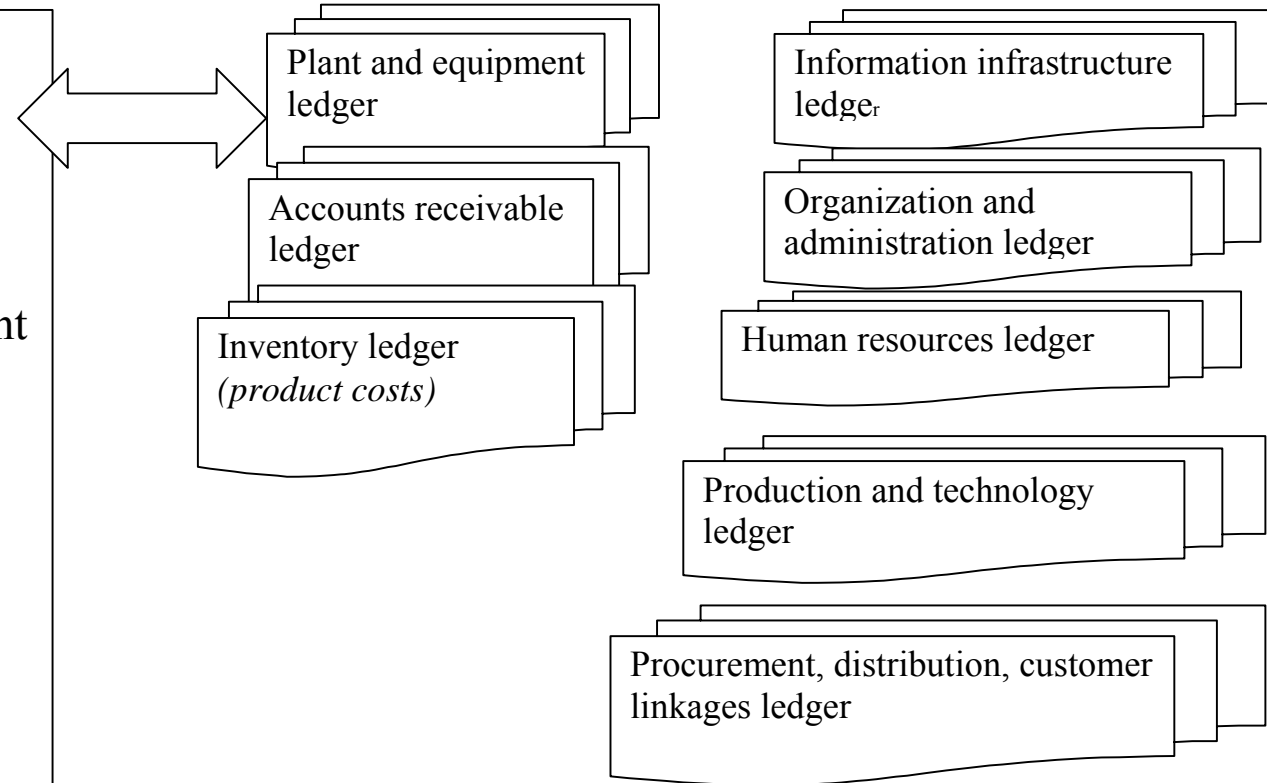


GENERAL LEDGER ENHANCEMENTS

GENERAL LEDGER

Asset accounts
1000 Petty cash
1010 Cash on hand
○
○
1300 Plant and equipment
○
○
1700 Information Infrastructure
1720 Organization and administration
1740 Human resources
1760 Production and technology
1780 Procurement, distribution, customer linkages

SUBSIDIARY ASSET LEDGERS



GENERAL LEDGER

Expense accounts

5000 Cost of sales

◦

◦

5700 Information Infrastructure

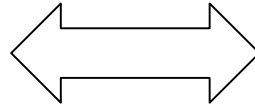
5720 Organization and administration

5740 Human resources

5760 Production and technology

5780 Procurement, distribution, customer linkages

SUBSIDIARY ASSET AND EXPENSE LEDGERS



Information infrastructure ledger

Organization and administration ledger

Human resources ledger

Production and technology ledger

Procurement, distribution, customer linkages ledger

Intangible Investment Rate of Return Computation

- **Monthly net revenue from a product R_t and two types of investment**
 - Type (h) (high initial investment)
 - Type (l) (low initial investment)

- **First, compute present value of each product's net revenues (PVR):**

$$PVR = R_0 (1+r)^n + R_1 (1+r)^{n-1} + \dots + R_{n-1} (1+r) + R_n$$

- **Second, separately compound monthly investment flow of Type (h) and (l)**

$$PVI_h = I_{h0} + I_{h1} (1+r)^1 + \dots + I_{h_{n-1}} (1+r)^{n-1} + I_{hn}$$

- THIRD, RETURN ON INVESTMENT TYPE (H) IS THE INTEREST RATE Γ , AND RETURN ON INVESTMENT TYPE (L) IS THE INTEREST RATE λ , THAT SOLVE THE EQUATION:

$$\sum_{t=0}^n I_{h_t}^* (1 + \gamma)^t + \sum_{t=0}^n I_{l_t}^* (1 + \lambda)^t = \Sigma R^*$$

l	γ	λ
	-0.41	-0.99
	0.09	0.04

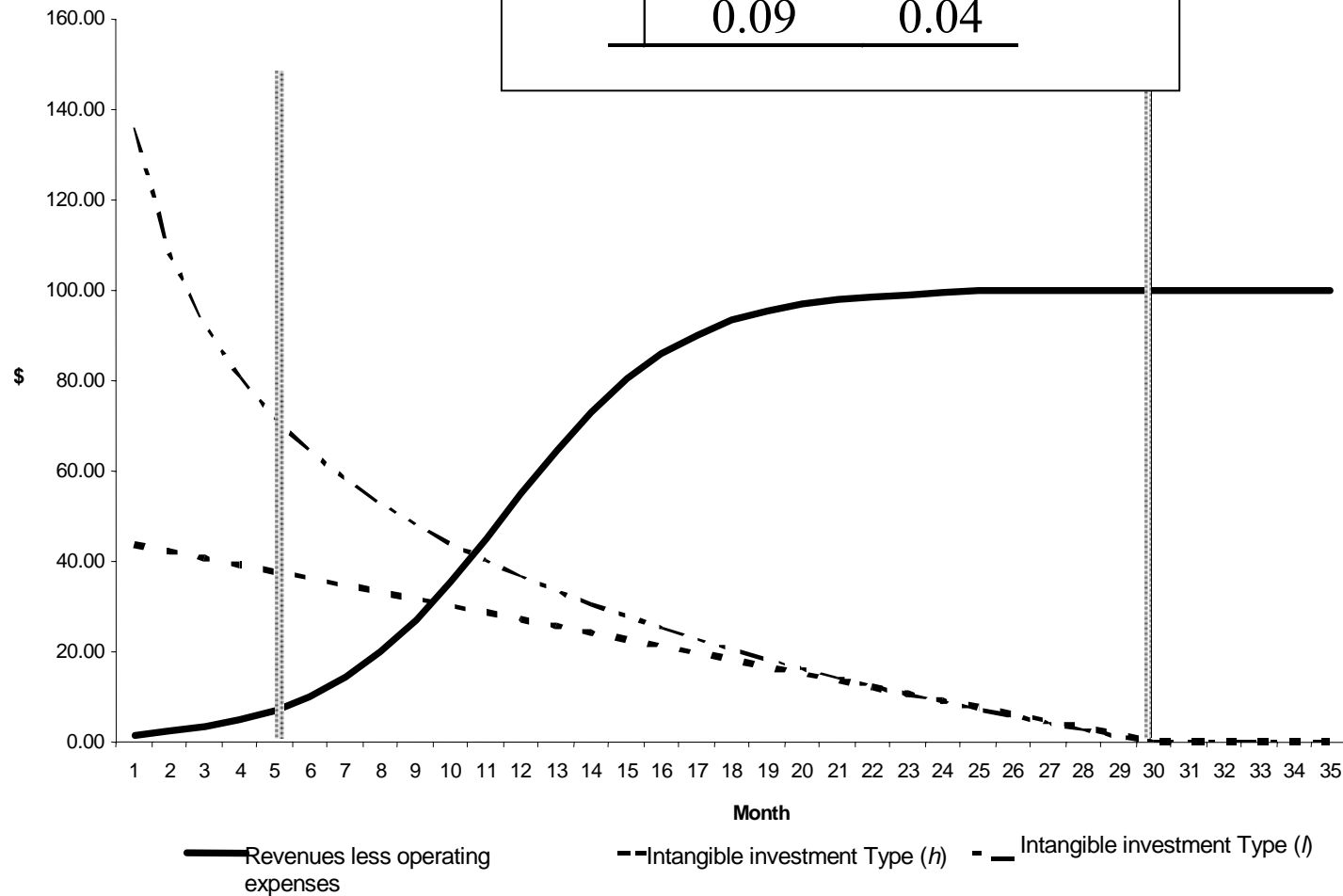


Figure 6: Stylised representation of monthly revenues and expenditures on intangible Investments for a specific product