

How to use
ADDED VALUE
to measure
DIRECT ECONOMIC IMPACT
and
PRODUCTIVITY

By Ian Lockie

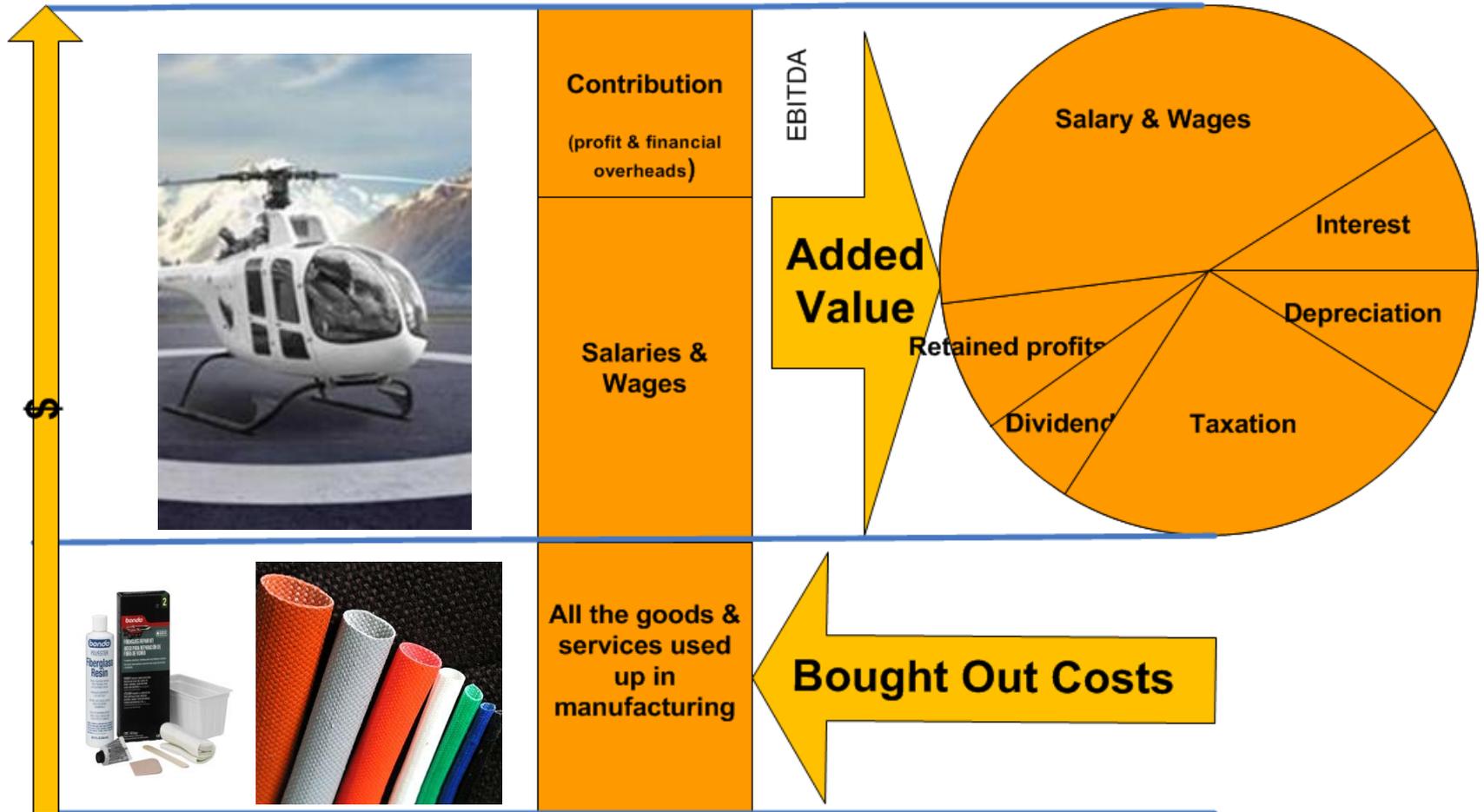
June 2020

Devised by Ian Lockie in 2007

The impact a commercial entity has on the ECONOMY can be estimated by applying **ADDED VALUE** analysis.

- A viable Commercial Entity **Adds Value** to the raw materials it consumes.
- The raw materials consumed are collectively called the “**Bought-out costs**”.
- “**Bought-out Costs**” can be measured by totalling the costs of all the goods and services that are consumed by an entity when it makes or supplies a good or service to a customer.
- “**Bought out costs**” are NOT the same as “cost of goods sold”
 - “**Bought out costs**” do NOT include wages or salaries: You don’t consume your staff!: *If you train and treat staff well, they will be better tomorrow than they are today.*
 - “**Bought out costs**” include things often not included in “cost of goods sold”, such as electricity, the things consumed to run the office and it also includes contractor’s fees: *Contractors are not employees, so they are recorded as “Bought-out Costs”, just like any other service that is consumed. Iterations of the DEI calculation will capture the effects that contractor’s incomes will have on the economy.*
 - *Regarding Information Technology (IT) entities: Their “Bought out costs” may be very small.*
- **The next slide demonstrates the concepts of ADDED VALUE and Bought-Out-Costs.**

The Creation of ADDED VALUE



For example: A helicopter is made from a composition of materials. Although the cost of the materials consumed maybe low, the sale value of the helicopter is high.

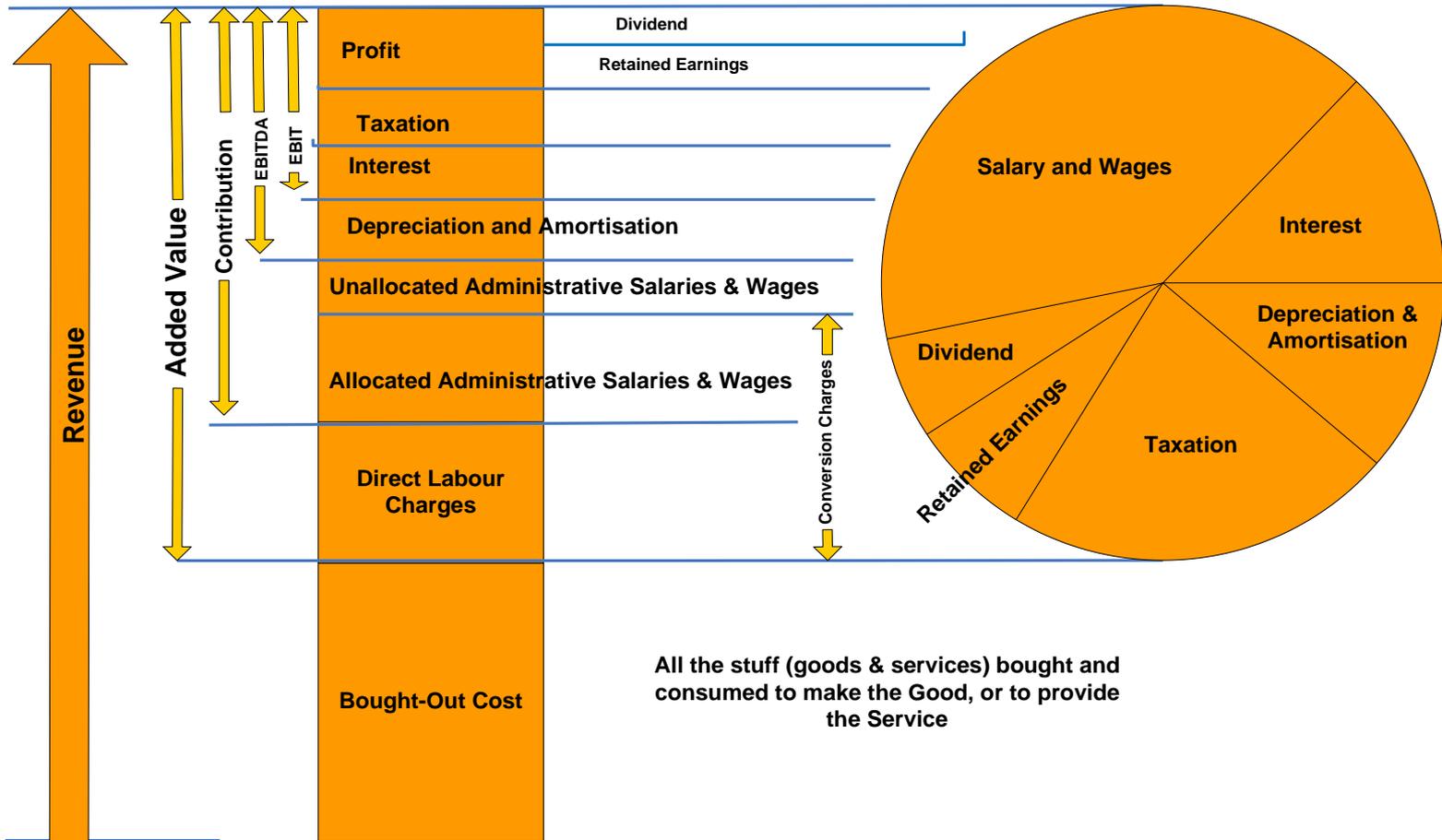
Where does the **ADDED VALUE** go?

- **Added Value** divides into six portions:

- (1) Salaries & Wages
 - (2) Depreciation & Amortisation
 - (3) Interest
 - (4) Taxes,
 - (5) Retained Earnings
 - (6) Dividends
- 
- EBITDA

(The next slide separates the revenue column into a number of accountancy divisions)

Added Value Contribution Analysis



The total Bought-Out Cost is easy to calculate from a standard set of financial accounts provided the Salary & Wage costs are also known:

Bought out cost =
Revenue minus Dividends minus Retained Earning minus Interest minus Taxes minus
Depreciation & amortisation minus Salaries & wages.

OR

Bought out cost =
Revenue minus EBIT minus Depreciation & amortisation minus Salaries & wages.

OR

Bought out cost =
Revenue minus EBITDA minus Salaries and wages

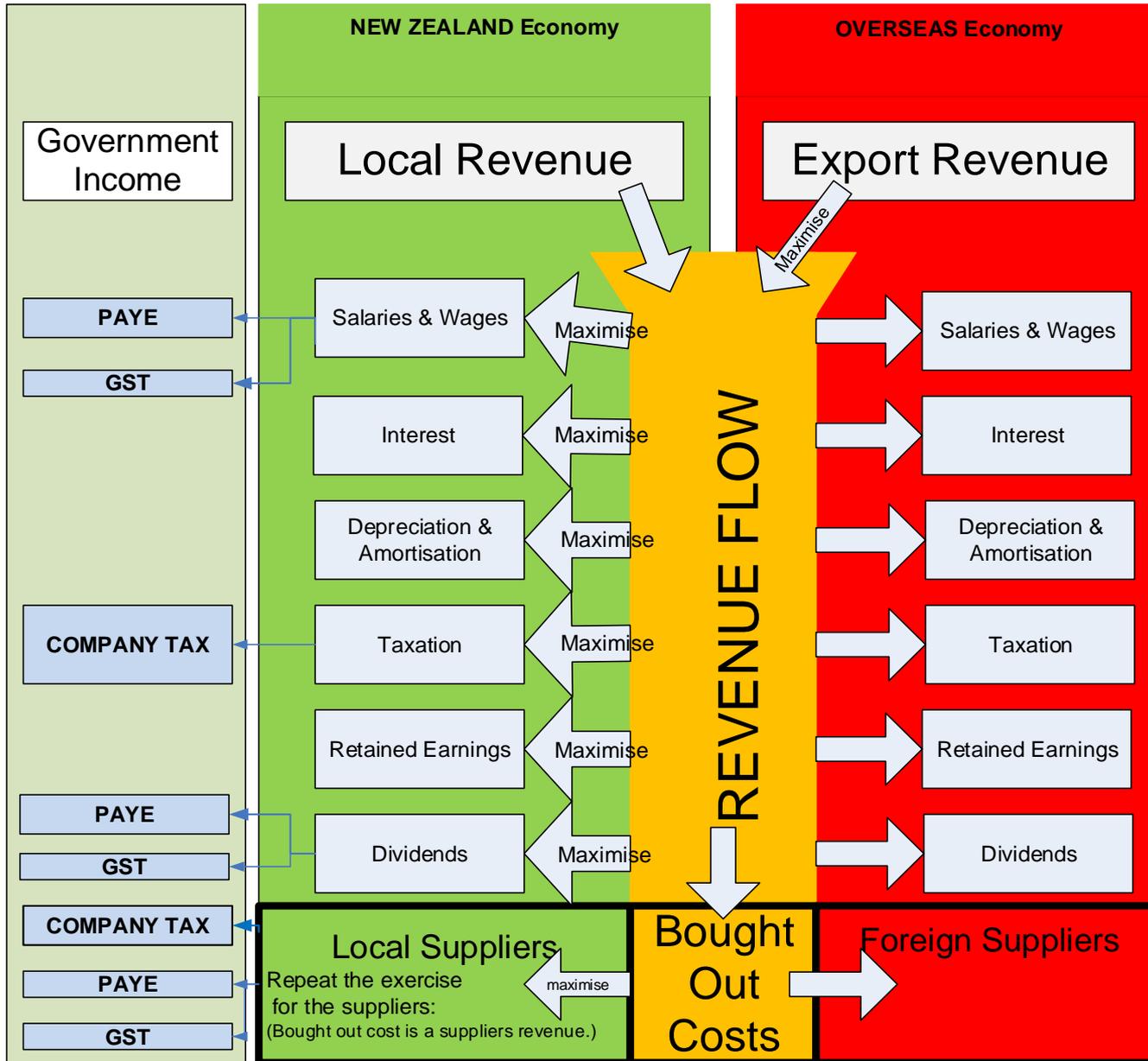
Direct Economic Impact (DEI) is the amount of ADDED VALUE that impacts the home economy.

When a company is trading internationally, some of the ADDED VALUE may flow to other countries.

Consider an entity that may be:

- Importing some raw materials and/or.
- Exporting, and/or.
- Receiving and/or sending funds from/to overseas:

The next slide illustrates how Worldwide Revenue (including revenue from New Zealand) flows either into the New Zealand economy or flows into other economies.



The next slide has three pie charts

- Pie chart 1 represents a New Zealand owned entity exporting from NZ.
- Pie chart 2 represents a Foreign owned entity operating and taxed in NZ and exporting from NZ.
- Pie chart 3 represents a New Zealand owned entity operating from a foreign country

Apart from the three differences above , assume the three entities are exactly the same: They generate the same revenue from the same activity in the same foreign market.

The three pie charts compare the **ADDED VALUE** that returns to the NZ economy:

- The coloured portions indicate the share of the **ADDED VALUE pie** that will benefit NZ.
- The blank portions indicate the share of the **ADDED VALUE pie** that will benefit another economy.

Conclusion:

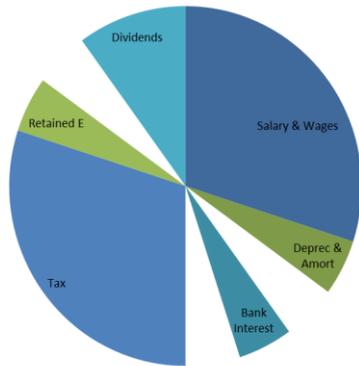
- NZ will gain the most percentage from the NZ owned entity exporting from NZ.
- NZ will gain a good percentage from the Foreign owned entity, registered & operating in NZ and exporting from NZ.
- NZ will gain the least percentage from the NZ owned entity operating overseas.
(i.e: An Overseas Direct Investment (ODI) will generate a small return to NZ).

The above logic can be used to calculate how much of the ADDED VALUE generated by an entity, flows back into the New Zealand Economy.

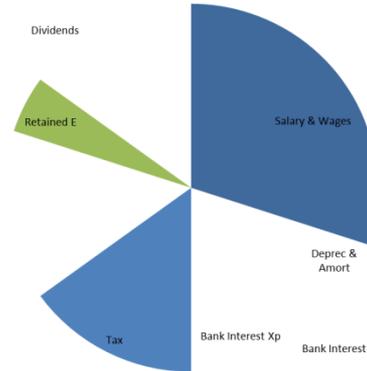
This measure is the: Direct Economic Impact (DEI)

Export Earnings: The Portions Flowing into the NZ Economy

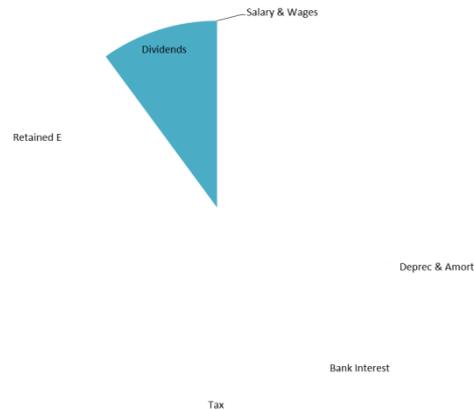
Portions of the Added Value Pie Contributing to the NZ Economy
NZ Firm investing in NZ



Portions of the Added Value Pie Contributing to the Economy.
Foreign firm investing in NZ



Portions of the Added Value Pie Contributing to the NZ Economy.
NZ Firm Investing Offshore (ODI)



Devised by Ian Lockie in 2007

How much of the **ADDED VALUE** may be allocated as Direct Economic Impact (DEI) to the home (NZ) Economy?

- **Wages & Salaries:**
 - Apply the full amount of the salaries & wages paid and taxed in NZ.
- **Company Tax (For an entity registered and taxed in NZ):**
 - Apply the full amount of company tax paid to the New Zealand government.
- **Interest:**
 - If the entity is funded by a bank in NZ, apply 72% of the interest charge to the DEI. (About 72% of NZ bank loans come from within NZ (As stated in Dec 2016 by Tony Alexander, BNZ chief economist).
 - If the entity is funded from offshore apply none of the interest to the DEI.
- **Depreciation & Amortisation (D&A):** D&A pays for wear & tear on the equipment & buildings etc.
 - If most of the D&A relates to imported items, then apply a small % of the D&A to the DEI.
 - If most of the D&A relates to items made in NZ, then apply a big % of the D&A to the DEI.
- **Retained Earnings (RE):** RE is used to expand the business.
 - If most RE is to be spent on new foreign equipment or foreign market development, then apply a small % of RE to the DEI.
 - If most of the RE is to be spent on things from within NZ, then apply a big % of RE to the DEI
- **Dividends:**
 - The % of the dividend that can be included in the DEI is the same as the % of the entity owned in NZ.
- **Suppliers:**
 - For the main suppliers, repeat the exercise (as above) and add their impact to the overall DEI result

A Direct Economic Impact (DEI) calculation may also estimate how much Tax the Government will receive.

Source of DEI revenue:

- Dividends:
- Retained Earnings:
- Tax on Entity Profitability:
- Interest:
- Depreciation and Amortisation:
- Salaries & Wages:
- The spend with NZ suppliers :

Revenue to the Government:

- PAYE & GST***
- Capital expenditure may generate tax from other entities.**
- Company Tax.**
- Not taxed**
- Not taxed**
- PAYE plus GST*.**
- May generate tax from other entities, including PAYE & GST**

*GST is a secondary tax derived from the subsequent expenditure of personal income (from Salaries & Wages plus Dividends) by employees and owners . Personal Income not subject to GST is limited to the acquisition of some assets and the related banking transactions. An estimate of Government revenue from GST may be derived by multiplying Personal Income by the GST rate (15%) and by multiplying that result by a factor of (say) 80% to reflect the amount of personal income that is spent on consumable items that are subject to GST.

Output measures derived from **ADDED VALUE** and **DEI** may be used to measure Productivity.

The Output measures (The numerators) may include:

- The ADDED VALUE (AV) that has been created.
- The Direct Economic Impact (DEI) that flows from the ADDED VALUE into the New Zealand Economy.
- The Government Revenue (tax) generated from the DEI.
- The Salary & Wage portion of the DEI.
- The number of High-Paid-Jobs created in New Zealand as part of the DEI.
 - The definition of a High-Paid-Job could be a person paid over (say) \$100,000* per year and living and taxed in New Zealand. The goal is to create MORE HIGH PAID JOBS within an Economy. It is NOT the goal to create any jobs. HIGH PAID JOBS have a net positive tax-welfare impact for the government. A family bread-winner earning less than 100K could be regarded as a net beneficiary of the welfare system once the cost of schooling, health and other Government services (for the family and others such as retired parents) are considered.

The Input measures (The denominators) may include:

- The cost of the project.
- The amount of Bought out costs consumed
- Revenue
- Bought Out Costs
- High paid jobs
- Salaries & Wages

Direct Economic Impact (DEI) analysis may be used to evaluate whether the Government should contribute to a project.

Consider the following project:

- A proposed new project offers an Internal Rate of Return (IRR) of 9% to the Entity.
- The Entity requires a minimum IRR of 10%, so the project may not proceed.
- Hence New Zealand gets no DEI benefit from the proposed project.

The Government Intervenes:

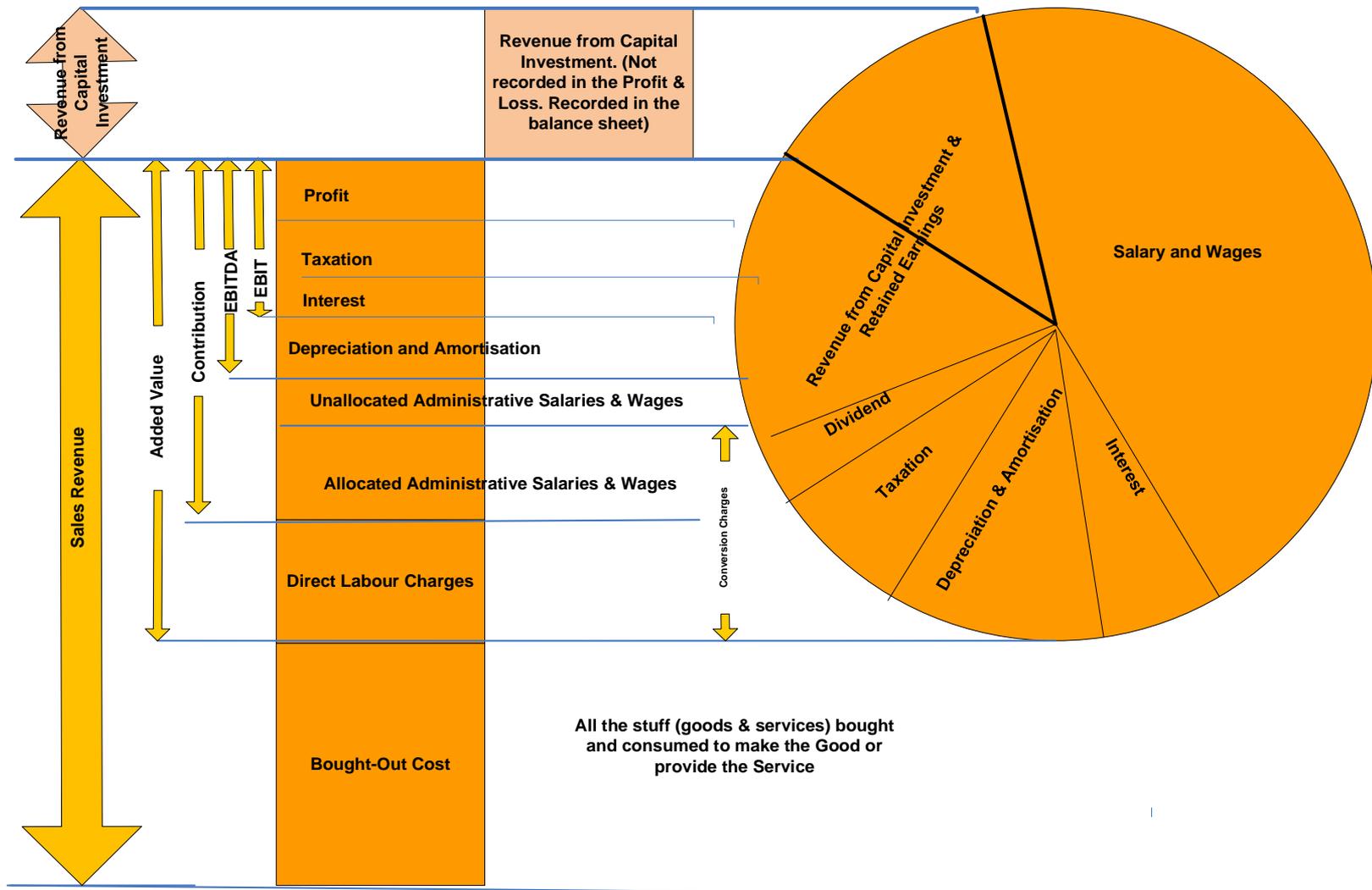
- The Government offers a financial contribution.
- For the Entity, the government contribution causes the IRR to improve to 11%
- The project proceeds and New Zealand gains the full benefit of the DEI.

The key points are:

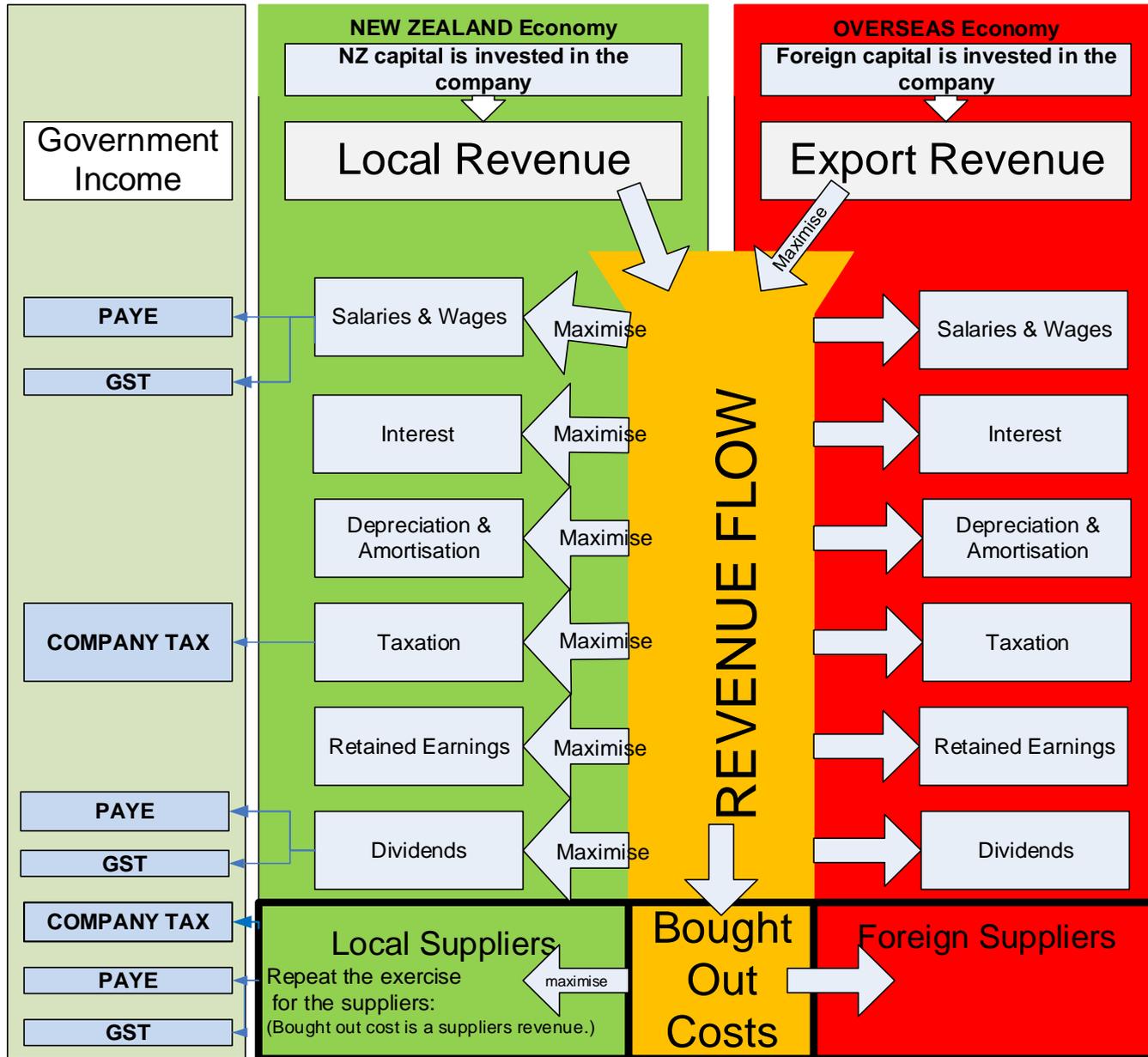
- The Government may consider supporting marginal projects that require a limited Government contribution to proceed.
- To calculate the benefit to the New Zealand economy from the Government's contribution: Divide the total Direct Economic Impact (DEI) of the project by the amount of the Government Contribution toward the project.
- The Entity's private contribution should not be included in the Government's calculation of the DEI benefit.

Direct Economic Impact (DEI) analysis may help the Overseas Investment Office.

- DEI analysis can help The Overseas Investment Office to determine the Impact that the sale of an entity to an Overseas buyer, may have on the New Zealand economy.
- The next 2 slides (slides 16 & 17) illustrate the DEI when an entity in New Zealand, receives an external investment from foreign and/or New Zealand sources.
- Slides 18 to 20 illustrate the DEI when an entity owned by New Zealanders is sold to a foreign buyer.

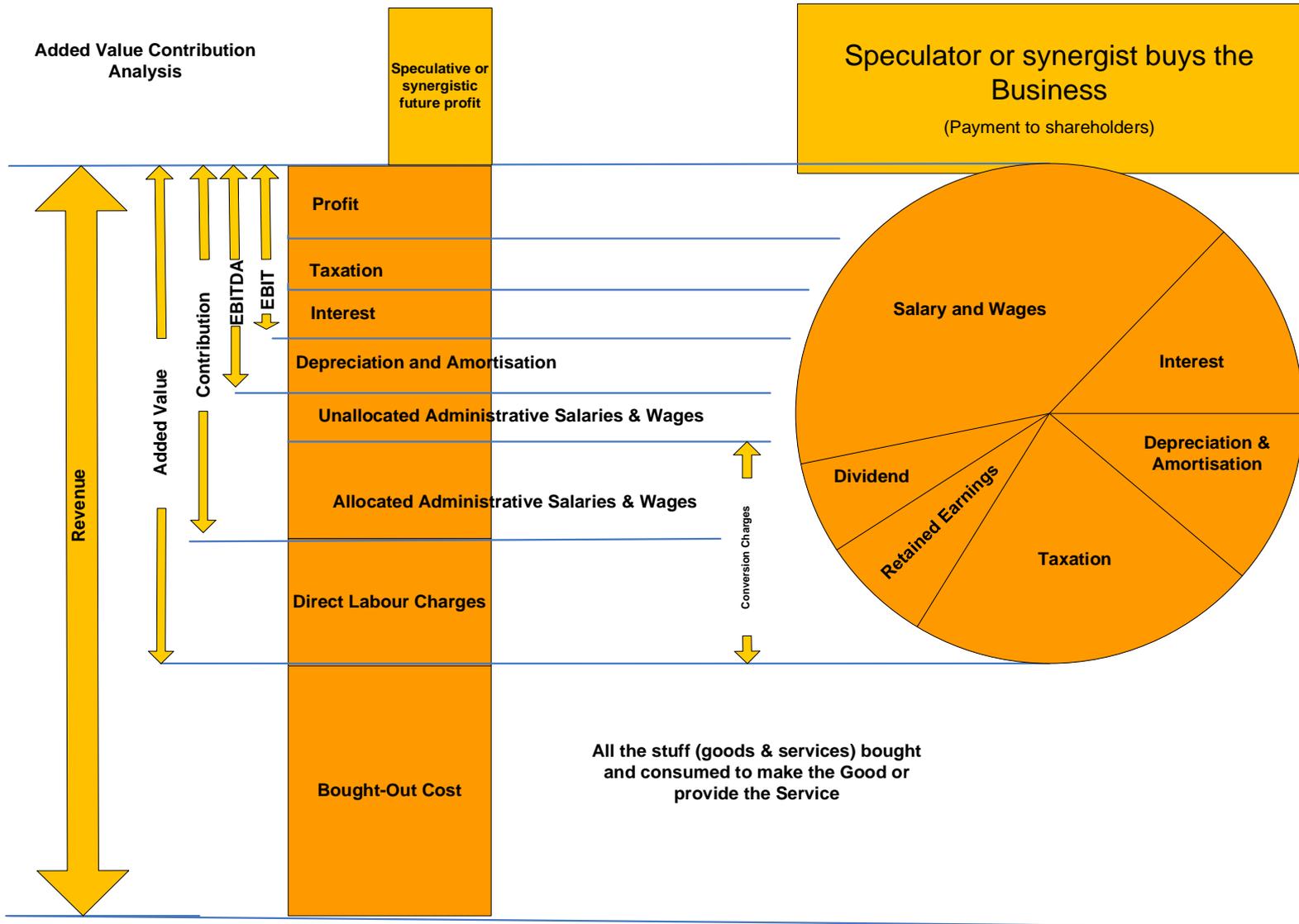


From an Added Value perspective, income from Capital Investments are the same as “Retained Earnings”

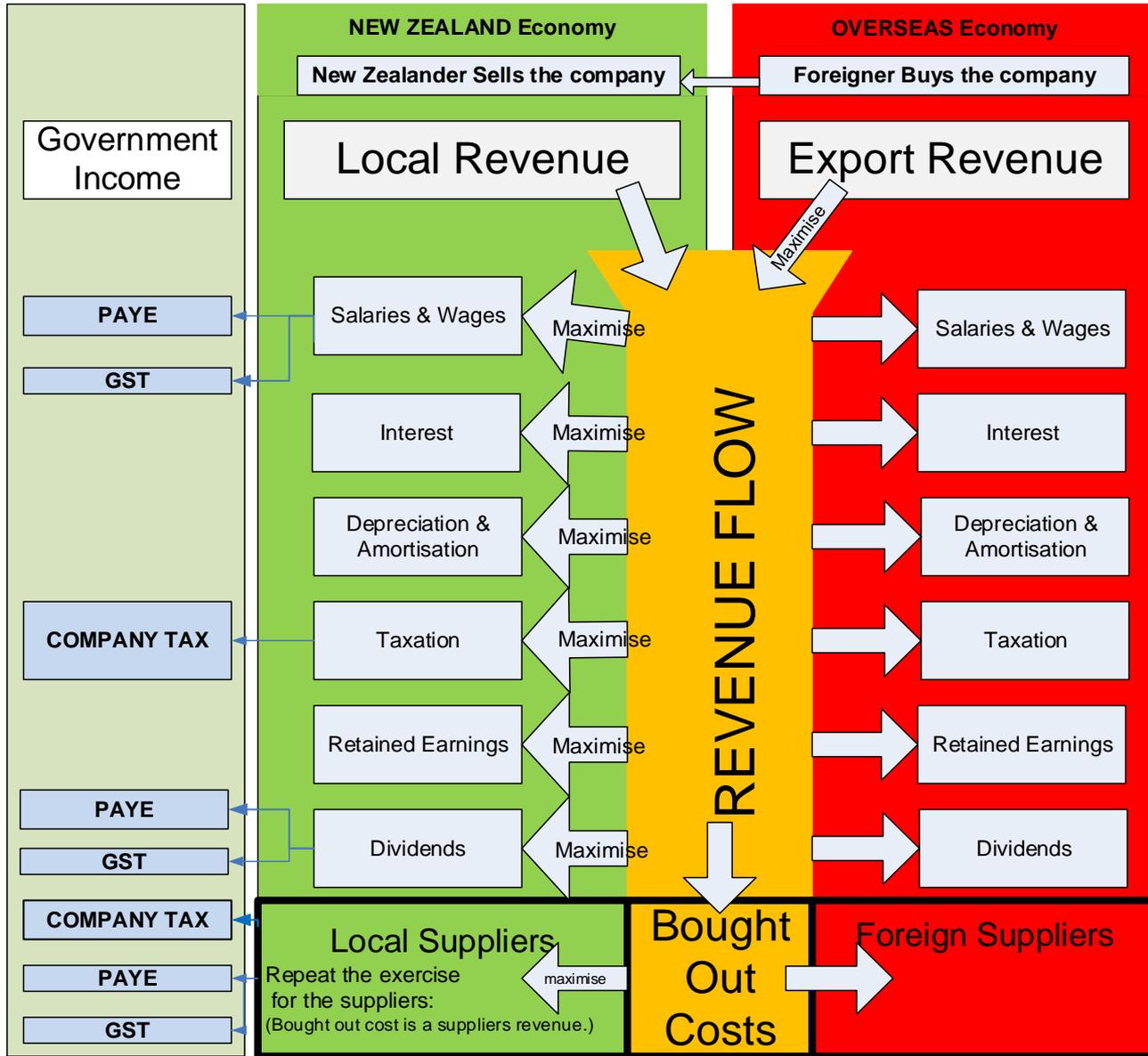


When a NZ entity is sold to a foreign buyer how does this event affect the DEI?

- The next two slides use the same arguments as in the previous 2 slides but allows for a one-off funds gain from the sale of an Entity owned by New Zealanders to an overseas buyer.
 - (The definition here, of a New Zealand entity, is one that is owned by one or more New Zealand resident(s) who are living in New Zealand and who are being taxed in New Zealand)
- The amount of funds flowing into the New Zealand economy from a sale-of-entity transaction depends on the vendor(s) decision to repatriate funds.
 - (Vendor(s) may choose to divert some or all funds into a foreign jurisdiction.)
- The tax on Income from the sale of the Entity depends on the tax law.



From an Added Value perspective, Funds from the sale of the Entity is added income for the economy. It is not revenue to the entity.



Devised by Ian Lockie in 2007

Direct Economic Impact (DEI) revisited:

A DEI calculation estimates the amount of ADDED VALUE that will flow into the New Zealand economy:

The DEI calculation may apply to a New Zealand Entity that buys goods and services in New Zealand and overseas. And sells goods and services in New Zealand and overseas.

A DEI calculator accompanies this submission:

The DEI Calculation may include several time periods. (Such as a project lasting 5 years)

- An Internal Rate of Return (IRR) methodology applies.
 - Step 1: Determine the DEI amount, period by period (usually year by year) for a specified number of periods (years).
 - Step 2: A discount factor may be applied to each future period. Sum the discounted amounts to create a total DEI .

Calculation of the DEI Multiple

- Step 1: Identify the amount of the investment in the project.
- Step 2: Divide the total DEI by the amount investment.
 - The **DEI Multiple** estimates the number of times that an investment in a project, is returned to the NZ economy during a specified period.
 - The **DEI Multiple** allows the returns from unrelated projects to be compared.

What discount rate should be used to equate the DEI created this year with the DEI created in future years?

- The TOTAL DEI equals the sum of the DEI to be created this year and the discounted value of those amounts to be created in future years
- The following slide suggests an annual discount rate :
 - The left-hand column lists the components of a commercial bank rate.
 - (A commercial bank rate can be used as a proxy for a commercial discount rate.)
 - The right-hand column identifies whether a component should be applied to a discount rate.
 - **Conclusion:** A discount factor need **not** be applied to a multi-year DEI calculation. 2020 worldwide interest rates are close to zero or negative: This is another reason not to apply a discount rate to a multi-year DEI calculation.

The composition of a commercial interest rate can be used as a proxy for a realistic discount rate.

| A commercial interest | rate: | Applicable to |
|------------------------------|------------------|----------------------|
| | rate p.a. | a DEI calc?.. |
| • Waiting time: | 1% | Yes |
| • Inflation: | 1% | No |
| • Risk: | 4% | No |
| • Administration | 1% | No |
| • Profit | <u>1%</u> | <u>No</u> |
| • TOTAL: | 8% | 1% |

Only “waiting time” should be considered when applying a discount to a DEI

Why not use a discount rate to an AV &/or DEI calculation?

- Why **include** waiting time?
 - Economies would rather receive an immediate return. A discount rate puts a cost on the waiting time.
- Why **not** include inflation?
 - Revenues and costs tend to rise in parallel, largely cancelling each other out, so inflation can be largely ignored. (The resulting DEI stays in current year dollars)
- Why **not** include risk?
 - If the risk of failure is (say) 4%, reduce the forecast income by 4% to achieve the same result. (i.e. reduce the forecast result by the % chance that project will not succeed)
- Why **not** include an administration fee?
 - An economic calculation does not recognise an administration costs.
- Why **not** include a profit?
 - The DEI result is the “profit”. Economic profit is what is determined by the DEI calculation.

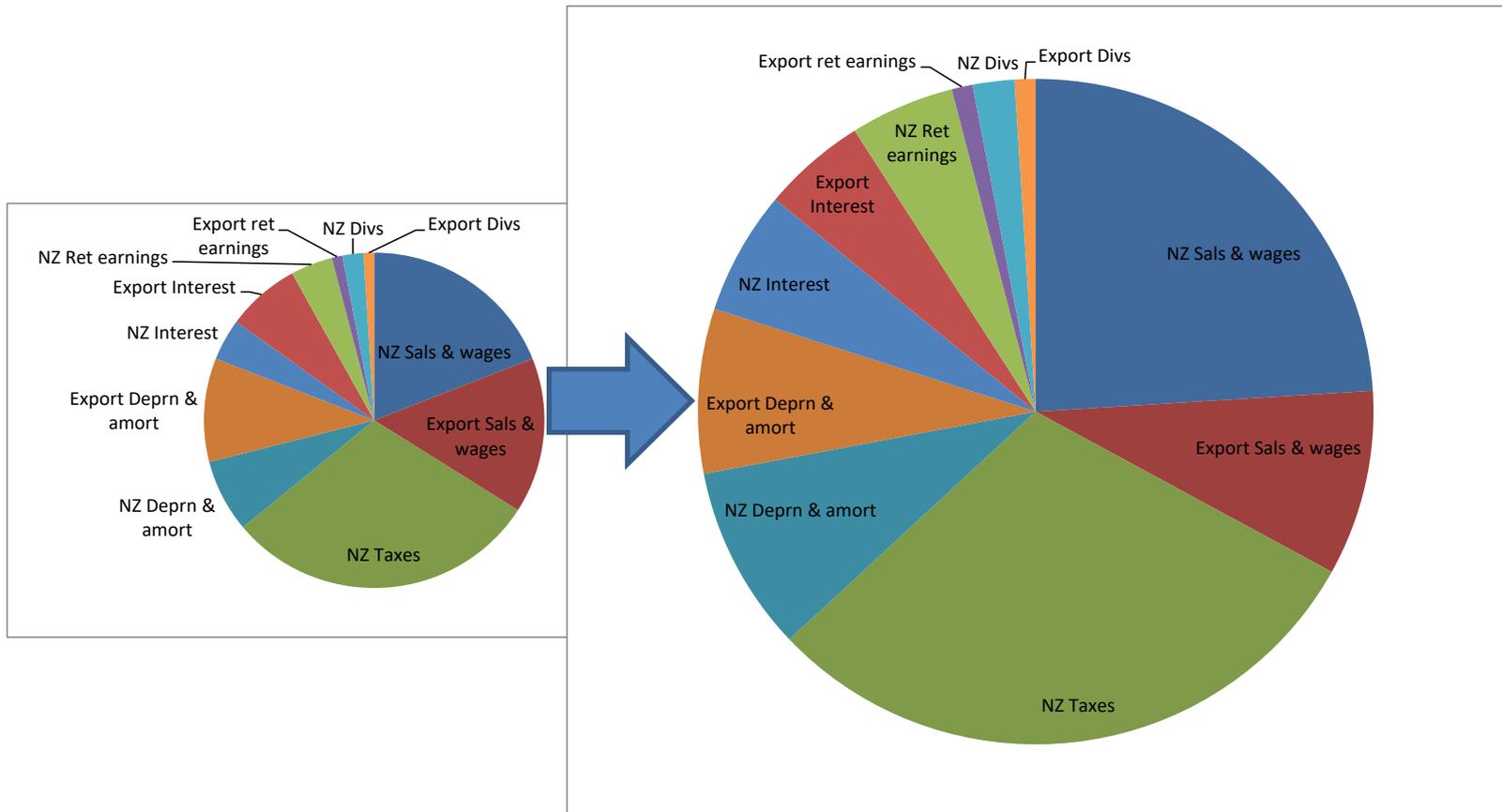
A DEI CALCULATOR ACCOMPANIES THIS SUBMISSION

**Forecasting the potential (p)DEI for a future project is an in-exact process.
Estimating the realised (r)DEI of a past project is also an inexact process.**

- The accompanying Excel DEI calculator shows how to estimate the economic impact an Entity has on the New Zealand Economy.
- The DEI calculator may forecast future economic impact, or it may be adapted to estimate past impact
- Further outputs may be added to a more complex DEI calculator

CONCLUSION:

The entity's objective may be to grow profit by growing the pie.
The Economy's objective is to grow the DIRECT ECONOMIC IMPACT (DEI) from that pie.



END

Devised by Ian Lockie in 2007