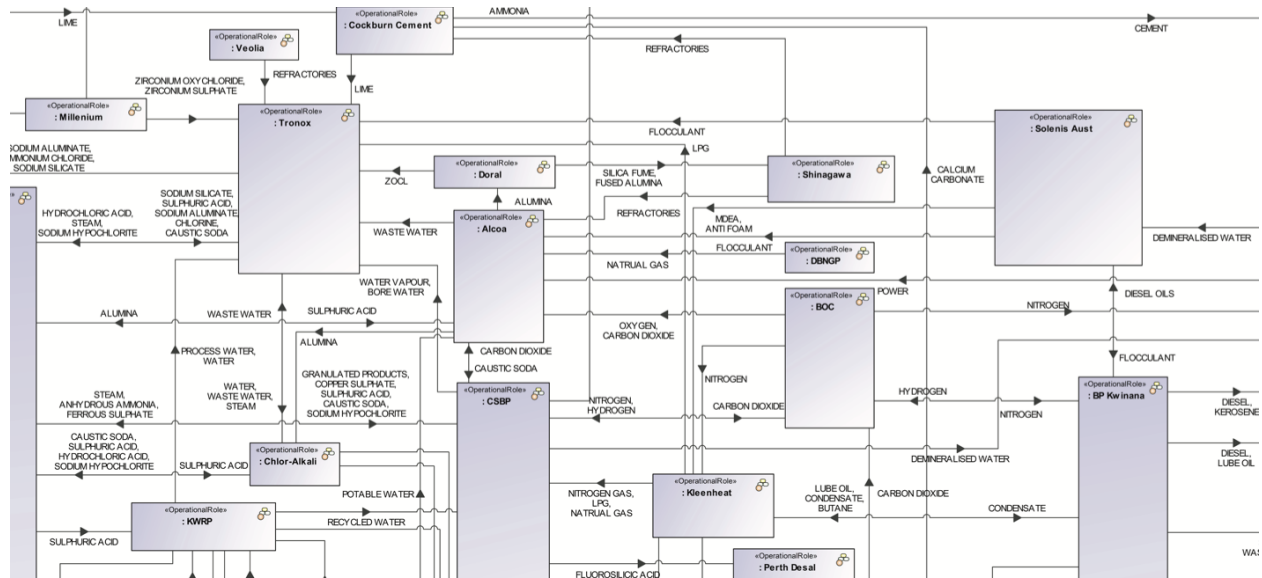


Survey Instrument for the 2021 Industrial Symbiosis review and initial assessment of KIC4 Dimensions 2, 3 and 4 - Preamble

Preamble

The Kwinana Industries Council (or KIC), is updating the Industrial Symbiosis schematic. The attachment (attach the 2014 schematic) shows an image of the most recent one which was compiled using 2013 data and published in 2014.



KIC is undertaking the review in partnership with Murdoch University utilising several Engineering Masters students under the supervision of Adjunct Professor Dr. Biji Kurup, of Murdoch University.

The first version of the schematic was produced in 1992. This review will be the 5th in the ongoing series. Previous reviews have been limited to gathering data about products and by-product use. This review will include these exchanges and will extend to include the provision of utilities and services such as labor and plant hire, fabrication, construction and engineering services.

It is an important undertaking especially currently, because many new industries are looking to enter the industrial area and are looking for suppliers of inputs and receivers of outputs (or by-products).

The students have a series of questions to be asked about your company. The questions have been endorsed by the KIC Director, Mr. Chris Oughton. You are encouraged to include input and output material supply chains beyond the membership of the KIC.

Definitions

KIC: Kwinana Industries Council

WTC: Western Trade Coast

Products: Commercial products directly manufactured for sale, the purpose of the process.

By-products: Materials indirectly produced as a result of the manufacture of commercial products

Questions:

Product, By-product and Utility Exchanges synergy (sample data table below)

1. What is the name of your company and are they a member of Kwinana Industries Council?
2. Does the company exist to:
 - a. Produce or distribute **product** for sale.
 - b. Provide **services** such as construction, fabrication, engineering, plant or labor hire.

If the company responded to 'a' above, answer the questions 3-12

If the company responded to 'b' above, please answer the questions under the heading 'Secondary Industries Synergy'.

3. What are the **products** you produce or distribute:
4. What **input chemicals or other materials** do you acquire for your production:
 - a. For each,
 - i. From which company is the material sourced:
 - ii. Identify each of the suppliers and the contact role:
 - iii. Is the supplier located within the WTC, and if not, where:
5. What **input utilities** (water <identify if it is potable water or recycled water>, electricity, steam, gas) do you acquire for your production:
 - a. For each,
 - i. From which company is the utility sourced:
 - ii. Identify each of the suppliers and the contact role:
 - iii. Is the supplier located within the WTC and if not where:
6. What **input services** do you acquire for your business, and from whom:

This question refers to the provision of services such as labor and plant hire, fabrication, construction and engineering services).

- a. For each,
 - i. From which company is the service sourced
 - ii. Identify each of the suppliers and the contact role
 - iii. Is the supplier located within the WTC, and if not, where:
7. What are the company's **commercially manufactured products** (outputs):
 - a. List these and for each, identify if they are sold to buyers within:
 - i. If within the Western Trade Coast, please identify the receiving company
 - ii. The State of Western Australia, identify the company
 - iii. States or Territories within Australia, identify the State or Territory
 - iv. International markets, identify the country
8. Does the company **produce by-products?** (chemicals, materials, or utilities such as water, electricity, steam, gas)
 - a. List these and for each, identify what happens to them:
 - i. Are they disposed of as waste materials to appropriate landfills etc:
 - ii. Are they stockpiled, and if so where:
 - iii. Are they provided to another company, for use in their own production process:
 - iv. Does the exchange provide a net income stream for the by-product producing company:
9. Does the company **receive by-products** from another company? (Chemicals, materials or utilities such as water, electricity, steam, gas) from another company:
 - a. List these and for each, identify if they are received from companies within:
 - i. The Western Trade Coast, identify the company:

- ii. The State of Western Australia, identify the company:
 - iii. From outside WA:
10. Are there any future product or by-product exchanges that you are working on or which you would like to develop? Can you share the nature of these please:

The following two questions relate to the Governance synergy

11. How flexible or supportive do you feel the legislative framework is in respect to Industrial symbiosis?
12. Is there any information/obligation/complexities that you are wanting from any government stated below to be resolved or approved?
- a. Local government
 - b. State government
 - c. Federal government

The Support Industry synergy

These questions are for companies located within the Western Trade Coast that provide services such as labor and plant hire, fabrication, construction and engineering services

13. What services do you **provide to companies** located within the WTC:
- a. List these and for each identify the client company within the WTC:
 - b. List clients within the WTC that you have provided services to:

The Skilled and Experienced Workforce' synergy

The next questions relate to a company's propensity to hire from within the local skilled and experienced workforce, be this managerial, professional (engineers, scientists etc), trades, administration etc. The local workforce is defined as those already working within the industrial area. These questions are focusing on the 'Skilled and Experienced Workforce' synergy.

14. With the exception of employees that are required to have highly specialised engineering or scientific backgrounds, does your company have a preference for employing appropriately skilled and experienced people from within the existing industrial workforce?
- a. If yes, please explain:
 - b. If no, please explain:
15. What proportion of your workforce live within 15-20 kilometers of their workplace? Could we obtain a list of employee post codes:
16. What is the company's employee turn-over rate and retention rate?

The next questions are for companies looking to come into the WTC

17. **Name** of the company and a **contact person** for future inquiries:
18. What is the **product** (or products) the company will produce:
- a. For each, where are its primary markets:
19. What **input materials and utilities** will the company's processes need:
- a. For each, from where will they be sourced:
20. What **by-product outputs** will the processes produce?
- a. For each, has a buyer been identified:
21. Would you like to be placed on a **public database** for companies looking to enter the Western Trade Coast, to assist with input materials and utilities, and process by-product destinations?

Respondent data table for questions 1 – 21

QN 1	Company name		KIC membership Y/N		Contact role
QN 2	Produces	Product for sale	Services provided		
QN 3	Products				
QN 4	Input Chemicals/materials	From what company	Suppliers	Within or not within WTC (where)	
QN 5	Input utilities	From what company	Suppliers	Within or not within WTC (where)	
QN 6	Input services	From what company	Suppliers	Within or not within WTC (where)	
QN 7	Commercial products		Within or not within WTC (where)		
QN 8	By-products	Provided to what company	Provision of net income stream	Ways of disposal and where	Within or not within WTC (where)

QN 9	Receive by-product	From what company		Within or not within WTC (where)		
QN 10	Possible future product exchanges	Possible future by-product exchanges	Provision of net income stream	With whom (within WTC/not within WTC)		
QN 11	Industry regulation on Industrial Symbiosis			Flexible/ Inflexible		
QN 12	Information/obligation/complexities from the government?					
QN 13	What services do you provide to companies located within the WTC?					
	Client's company		Services provided			
QN 14	Employees are skilled and experienced people (YES OR NO)		WHY?			
QN 15	Work force living within 15-20kms		Work force living <20kms from workplace			
QN 16	Turn-over rate		Retention rate			
	COMPANIES LOOKING TO JOIN WTC					

QN 17	Company name	Contact role
QN 18	Products produced	Primary markets location
QN 19	Input materials and utilities	Source of the inputs
QN 20	By products or output produced	Any buyer identified
QN 21	Public database placement for companies joining WTC (YES or NO)	