

Systems Week Brief

ENGGEN 403: Systems Thinking

Peter and Amanda

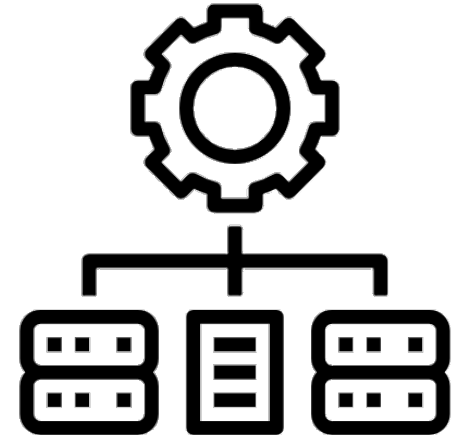
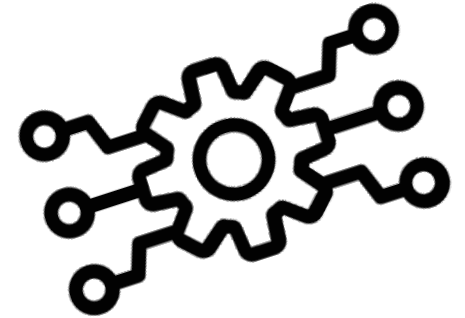


UNIVERSITY OF
AUCKLAND
Waipapa Taumata Rau
NEW ZEALAND

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Lecture Outline

- 1.Introduction
- 2.Systems Week Challenge & Background
- 3.Your Brief
- 4.Questions to Help with Analysis
- 5.Don't Forget The Tools!
- 6.Points to Consider
- 7.Logistics
- 8.Supporting Material



The Systems Week Challenge



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The challenge for Systems Week 2024 is to develop a detailed business case that addresses the high food costs faced by Aotearoa New Zealand consumers. Your team will select any **two segments (problem spaces)** of the food supply chain in New Zealand and craft **one problem statement for each** of these. (two independent problem statements, one per segment). You must consider the societal costs and benefits as well as the economic costs and benefits. Your final recommended innovation(s) should include an extensive discussion on how it/they addresses the overall problem of high food prices in New Zealand, as well as consider how to make the system more resilient and less susceptible to weather, health emergencies, transportation bottlenecks, and other disruptions.

Background – Escalating NZ Food Cost

The new data shows that the average household was spending just under \$300 a week on food - and that's up by 28.1% since 2019.

- '22-'23: Food basket of common foods: ↑ 56%
- '24 Food prices dropped marginally since '23 (1st since '18)
- Current prices ('23-'24) highest since 1961
- Disproportionally impacting elderly & children
- Only 5.4% (2-14 yr) meet nutritional needs



Background – NZ Food Cost

The rising price of groceries and the human cost of food insecurity

Felix Walton
Contributing writer

Show Story



Image: Tessa Tyler

Home / Business

New data: Grocery prices push food bills higher in April



By **Liam Dann**

Business Editor at Large - NZ Herald - 12 May, 2022 10:27 AM 2 mins to read

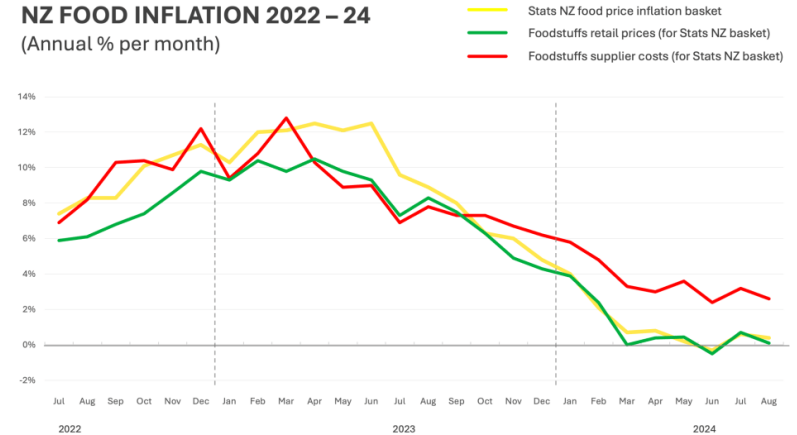
15 Comments

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NZ FOOD INFLATION 2022 – 24 (Annual % per month)



Key facts

Monthly change

Food prices rose 0.5 percent in August 2023. After seasonal adjustment, they rose 0.4 percent.

In August 2023 compared with July 2023:

- fruit and vegetables prices rose 3.3 percent (up 2.8 percent after seasonal adjustment)
- meat, poultry, and fish prices were unchanged at 0.0 percent
- grocery food prices fell 0.1 percent
- non-alcoholic beverage prices fell 0.9 percent
- restaurant meals and ready-to-eat food prices rose 0.3 percent.

Stats NZ



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BUSINESS / FOOD

Households still in grip of high food costs

5:15 pm on 23 May 2024

Susan Edmunds, Money Correspondent

Share this



All New Zealanders are facing escalating food prices, taking up a greater share of their household incomes

Can anything be done about this! How might it be improved, managed, or reduced?

Think:

What are all the factors contributing to this?

How can societal needs be balanced with shareholders, producer expectations, and NZ role in the primary sector?

What are the impacts and risks of climate, transportation, labour, and logistics?

Time Periods - 5-10 Years

Short term:

Within horizon of current Gov't and next
election cycle
URGENT needs and response



<https://www.parliament.nz/en>

Medium term:

Longer term policy and resiliency



<https://economistzone.com/insight/roles-of-economists-in-policy-making/>

Systems Week Brief



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Hon Todd McClay, MPI



What new innovations can be developed to tackle the high cost of food in Aotearoa New Zealand over the next 10 years?

Hon Nicola Willis, Treasurer

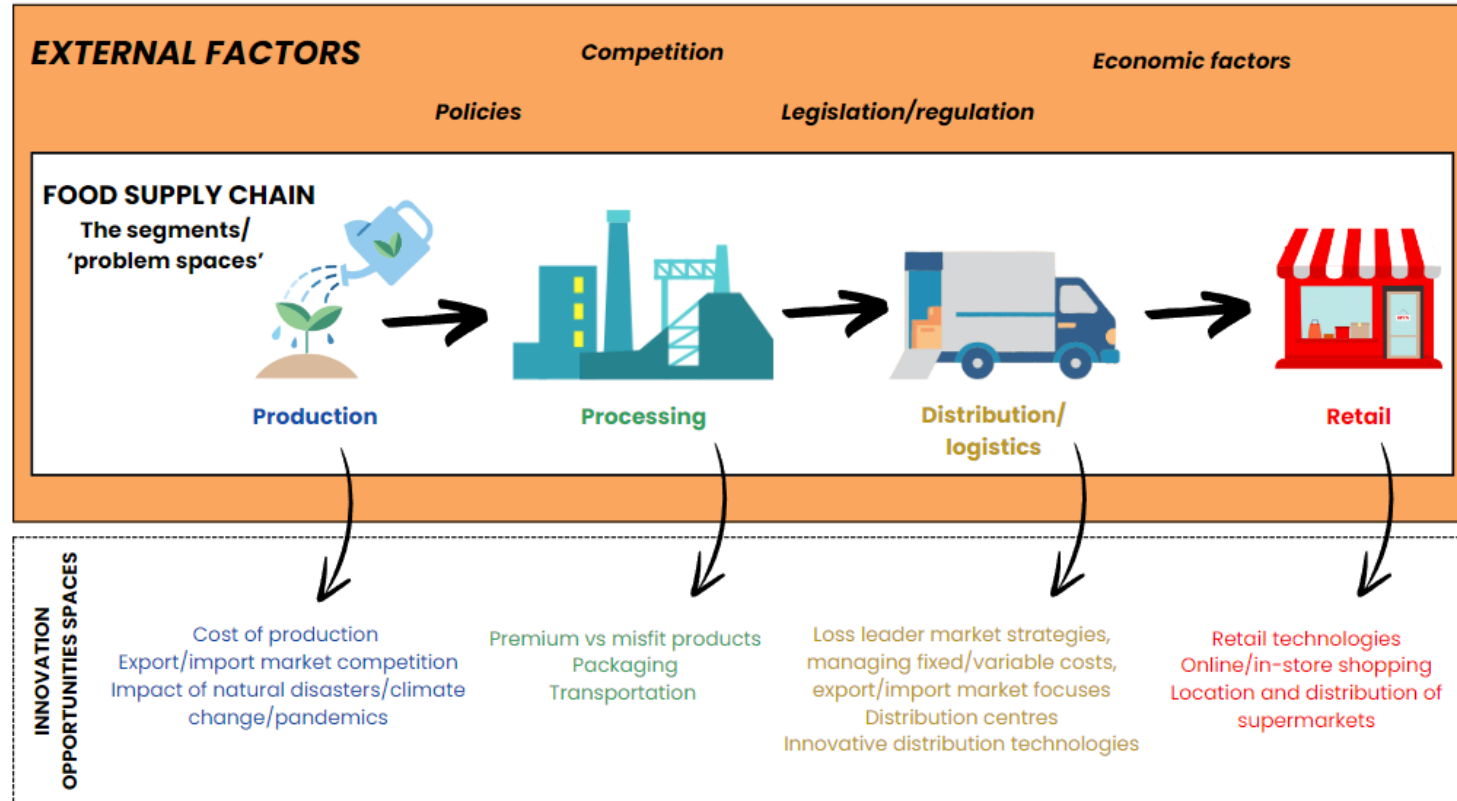


Your challenge is to make a recommendation to the Ministers for innovations to improve escalating food prices by focusing on two of the four segments of food supply/value chain, recognizing that there are many stakeholder outside of the jurisdiction of the Government .

Hon Andrew Bayly, Commerce



Four Segments



Retail Segment

*It should be recognised that the current food retailer system in New Zealand is dominated by a few players. Any changes to this system are likely to be complex in terms of regulation and legal structures, perhaps with significant challenges to feasibility, as well as difficult and protracted to implement. Therefore, solutions, improvements, or other novel approaches to this problem space would likely need to be very well thought out and heavily supported. Thus, innovating in this area may well be a **high-risk endeavour**. Teams should carefully research, understand, and consider innovations in any aspect of the system, but particularly the retail level. Some references are provided that may assist in better understanding the forces and implications of concentrated oligopolies in smaller countries across a range of goods*



Systems Week Scope



The NZ Government and private economists have highlighted historically high and rapidly escalating food costs.

Various studies and initiatives have been conducted or are being considered.

Our Food costs and associated impact on cost of living is at crisis levels.

Food costs are impacting competitiveness, health and wellbeing, and quality of life .

Consider new innovations:

Digital Technologies

- Digital technologies to streamline workstreams, supply chains, and processes.

Production Methods and Impacts

- Technologies that primary industries production, costs, and management

New Infrastructure or Reorganization

- Shifting to alternate forms of distribution, diet, or purchasing channels
- Relocation and reorganization of distribution, logistics, delivery

Balance of Imported/Domestic Supply

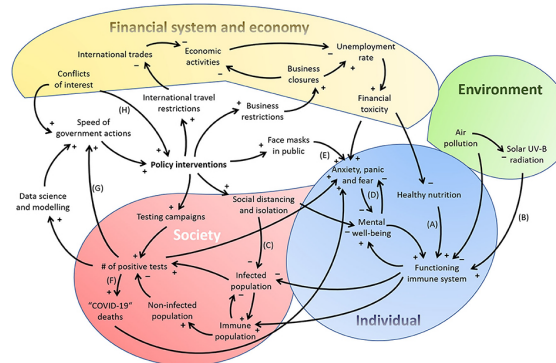
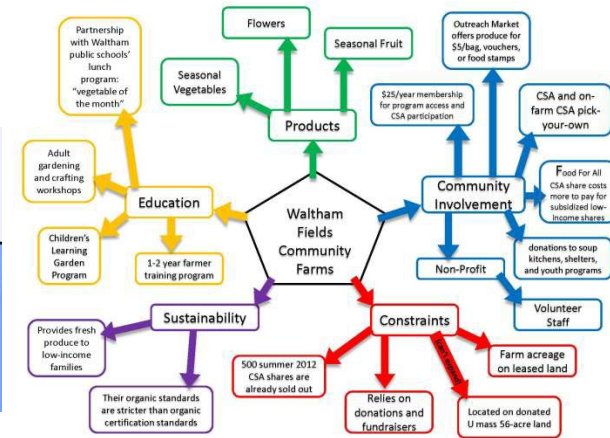
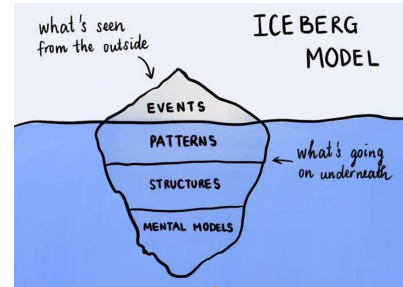
- Tariffs or other barriers to imported/less healthy

Government Spending in other areas

- Dietary education in schools as a compulsory subject
- Voucher or subsidy programmes

Don't Forget the Tools

- System Models (Conceptual and Computational)
- Causal Loops
- Levels of Thinking
- Trend Maps
- Mind Mapping
- Mental Models
- Bathtub Theorem
- Leverage Points



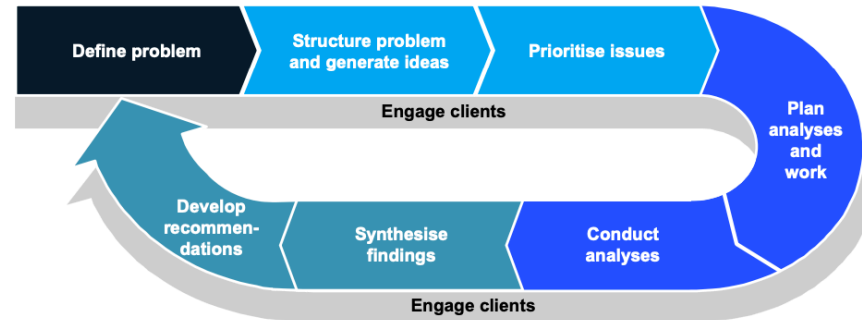
Understand the Problem(s)

1 Define

- Debate and agree as a team on the definition of the core problem
- **Why:** Team is aligned around problem and methodology

2 Structure

- Identify the best problem solving approach
- Prioritise and target key issues
- **Why:** Bring the right approach to the situation and the client



4 Synthesise

- Synthesise findings and develop recommendations
- Engage and leverage your leadership
- **Why:** Build momentum around the recommendation

3 Analyse

- Use the most appropriate analytic tools
- Ensure analytic rigor is applied to the process
- **Why:** Improper use of advanced analytic tools can create confidence in incorrect answers

Two problem statements

- One for each of two segments

- Consider cost and resiliency

- The weighting of the problem statements & why

Root cause analysis, Five whys, problem tree, mind mapping, causal loops etc.

Many stakeholders to consider, how can you improve for one without sacrificing another

Requirements – Justify which requirements, why not other requirements?

Conflicting requirements? KSFs and iterations amongst them

Economic Case



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Ideation outputs

Long list – Breadth of constrained options

KSFs and problem statements

- Must be explained and justified

DFV – Feasibility a big one, does it actually solve the problem? Capacity? Technologically? Regulatory? Realistically balanced? Timeline?

Screening can be done in series or parallel

DON'T JUST DROP OPTIONS, explain where they went...

High Level Social CBA

Considers the high-level cost (millions),

- Granularity = rough cost of design/ professional services, construction, land acquisition if required.
- Confidence level: Class 5, P50, P100

What are your main benefit(s) to society? Can these be quantified?
Monetised? Funded?

Intangible Social impacts (qualitative) discussed narratively, effect on the 4 capitals, on the indicators from the LSF

Expected outcomes and measures of success

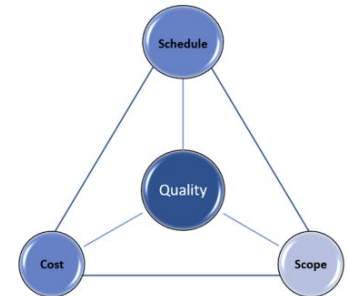
- Clear and Measurable goals – overall & for each phase
- Within budget? Within timeline? Quality?

A high- level timeline/implementation plan of the project

- Granularity - years to multiple years
- Think about the level of detail the audience needs

Funding sources

- New debt?
- Within existing budget?



(Ashkanani, 2022)

Points to Consider

These questions may (or may not) be incorporated into your overall report.

Will the public support these plans?

Do we need to prioritise more vulnerable populations?

How do you address the needs of these different groups?

How does commitments to things like climate change, education, infrastructure balance with food cost of living?

Will Government Policy cause the population to change their lifestyles and habits?

Where does your plan sit alongside other UN Sustainability Goals: social equity, poverty, housing, employment?

What will the plan look like in the short term vs the medium term?

The crunchy bit – THINKING!

Some articles, reports, and references have been provided to aid your research.

You will do other research, but this is ***not primarily*** a research project

Focus on **analysis and synthesis** for a compelling and innovative **recommendation**

Rooms on campus booked for every team – 3 hours each day

Use of Discord, Canvas, Facebook, Zoom, etc. for virtual communications

Zoom check in mentoring/Q & A sessions on Tuesday

Team leader(s) are responsible for creating and managing schedules

Be sure you are active on team comms and management platforms

Formats and Due Date



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Due:

27th September 2024, 5 PM but aim to submit earlier so you have time in case of any problems!

Deliverables:

Report, 3-4 minute Video, Team Photo

Page limits:

Report body - Maximum of 20
Appendix – up to 20 pages
Does **not** include the cover sheet, ToC, and References

4.0 Report deliverables	
4.1 Executive Summary	
4.2 The Strategic Case	
4.2.1 Project Background	
4.2.2 Problem Space	
4.2.3 Stakeholder Analysis	
4.2.4 Key constraints and assumptions	
4.3 The Economic Case	
4.3.1 Long-list Options Assessment	
4.3.2 Narrowing down to the short-list	
4.4 The Financial Case	
4.4.1 High-Level Cost-Benefit Analysis	
4.4.2 Benefits and Societal Considerations	
4.4.3 Preferred Way Forward	
4.5 The Management Case	
4.5.1 High-level Implementation and Project Plan	
4.5.2 Expected Outcomes and Measures of Success	
4.5.3 Funding	
4.6 Recommendations and Conclusions	

Video Example



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29th of September 2023

IMPROVING NEW ZEALAND'S HEALTHCARE SYSTEM FOR ALL



Te Whatu Ora
Health New Zealand



Te Kāwanatanga o Aotearoa
New Zealand Government

Team 20 | ENGGEN 403: Managing a Business

Project Team Lead: Jean-Daniel Rosset

<https://www.youtube.com/watch?v=bf6Puswsf6w>

A few notes to help you succeed



Read the brief and rubric carefully and check it regularly to ensure you are on track – particularly towards the end.



We are looking for depth of consideration, good credible judgement, and development of logic.

Don't be vague, make stuff up, or gloss over the facts.



There is no single 'right' answer. Everyone will come up with something different.

As long as we can follow your logic and find credibility in your conclusions.



We award marks for critical thinking

How you came up with your answer is more important than the answer itself.



No matter what sources you use, be sure to cite them (properly!)

What now?

Brief available at midday tomorrow

Over the weekend, we strongly recommend students
READ the brief and review the associated materials.

Leadership teams should organise communications,
structure, and logistics (leaders refer to Peters email on
Friday morning).

Work starts from 8 am MONDAY! AS A TEAM – team
leader to schedule

Be considerate of students who have assignments over
the weekend, or need some downtime before you start
this high intensity activity.



GOOD LUCK!

SMASH IT!

HAVE FUN!



Fig 1. 23 teams working in a L9 lab during systems week 2022

Questions?



All icons used have been sourced from thenounproject.com



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