



Problems with  
the  
Four Pieces Limit

Problems that are complex  
and/or multidisciplinary,  
or where people couldn't be bothered

# Complex Specifications

A specification for a complex piece of technology can run to a thousand pages, have a glossary and terms defined inline, and be full of bullets referencing other bullets within clauses. In other words, a description that is hard to understand, even by experts. It will typically have multiple areas of expertise – for a plane, that might be wings, fuselage, engines, control surfaces, avionics. If the technology is “new”, there is no body of text to support it.

A specification might be “alive” for twenty years, and have related activities, like V and V.



# Complex Legislation

Similar to a complex specification, but with an important increase in difficulty. The people who pass it into law are not specialists, and are unlikely to see the legislation in any holistic way. Something that does see it that way, and can show what happens if an aspect is changed, should be useful, particularly when the bill is hit with a flood of proposed amendments before it is voted on.

The other use is during operation of the legislation.



# Legislation as Machinery

The AML/CTF Act describes a particular transaction:

- *Same-institution same-person electronic funds transfer instruction*
- (2) For the purposes of this Act, if:
  - (a) a person (the *payer*) instructs a person (the *ordering institution*) to make money controlled by the payer available to the payer by:
    - (i) being credited to an account held by the payer with the ordering institution; or
    - (ii) being paid to the payer by the ordering institution; and
  - (b) the transfer is to be carried out wholly or partly by means of one or more electronic communications;
- and
  - (c) the ordering institution is:
    - (i) an ADI; or
    - (ii) a bank; or
    - (iii) a building society; or
    - (iv) a credit union; or
    - (v) a person specified in the AML/CTF Rules;
- then:
  - (d) the instruction is a *same-institution same-person electronic funds transfer instruction*; and
  - (e) for the purposes of the application of this Act to making the money available to the payer:
    - (i) the payer may also be known as the *payee*; and
    - (ii) the ordering institution may also be known as the *beneficiary institution*.

This can be read by a machine, and the textual description of the mechanisms turned into active structure that does exactly what the text says it should do.



# Complex Planning

An obvious example is the changeover from Internal Combustion Engine (ICE) cars to electric cars (EVs). The timeframe is long, there is resistance from the public, a legislated timeframe for the transition, after which ICE cars will not be sold, scarcity of the minerals needed, parallel production of ICE and EVs, an eventual large reduction in the auto manufacturers' workforce. Alternative technologies – solid state batteries, hydrogen fuel cells – may emerge during the transition, so planning needs to be dynamic and easily reorganized over a long period of time as influences change.



# Economic Modelling

“Economics is less amenable than physics to definitive mathematical analysis because it is about people, whose responses to similar phenomena change over time. We build models in our minds or computers that fit observed reality at one point in time, and reality changes. Then we have to think harder about what’s going on.” – Ross Garnaut. It would be better to think smarter by getting rid of the limit rather than harder.

The recent indecision in the US over whether the surge in inflation would be transitory or long-lasting illustrated the fragility and poor predictive power of economic models that do not merge psychology (“text”) with more mathematical forms of modelling. Economic modelling is the poster child for the Four Pieces Limit. One economist proposes a theory based on four factors, the rest forced to be constant, because the person doesn’t have the bandwidth to think about them. Another economist chooses a different four, and comes up with a conflicting theory, with argument and counterargument merely disguising what is a severe cognitive limit.

