



Patents



Trade Marks



Designs



Plant Breeder's  
Rights

# Manner of Manufacture Information and Computer Technology Patent Office Practice

November 2018

Nathan Madsen (Supervising Examiner – Data processing and Measurements)





# Overview

## Case law primer

- *NRDC* – A starting point
- *Myriad* – The “substance of the invention” test
- *Research Affiliates* and *RPL* (both FCFCA) – Computers are “method doing” machines
- *NRDC*, *RPL*, *MYRIAD* in action – Patent Office Approach
- Grounds remain separated (novelty, inventive step, manner of manufacture)
- Summary

Technical problems, technical solutions, technical in nature...

Applying the legal framework, examples;

- Measurements, GUIs, Business schemes/methods, software in general

S40 – The *quid pro quo*

Wrap up



## *NRDC*

“The point is that a process, to fall within the limits of patentability which the context of the Statute of Monopolies has supplied, must be one that offers **some advantage which is material, in the sense that the process belongs to a useful art as distinct from a fine art...** that its value to the country is in the field of economic endeavour.”

One cannot apply *NRDC* without an awareness of the context of the invention

- Claims were to the eradication of weeds from crop areas by application of chemicals
- Known chemicals, new properties discovered

Patent Office understanding of *NRDC* is that the words formulated by the High Court serve the claims in question very neatly. They do not appear to be drafted with a mind to the advent and proliferation of computer technology. This does not mean *NRDC* is not useful.



# *Myriad*

“The terminology of an ‘**artificially created state of affairs of economic significance**’ is to be understood in the context in which it was used in *NRDC*. **It was not intended as a formula exhaustive of the concept of manner of manufacture.** The Court made that point emphatically: ‘To attempt to place upon the idea the fetters of an exact verbal formula could never have been sound.’” at [20]

It was noted that “...a case by case methodology” is authorized. (see [23])

This means that, in applying *NRDC*, examiners are required to understand the principles developed by the Court, and articulated consistently in other precedential decisions, and apply them to the context of the particular case under examination. “Literally” applying words in *NRDC* is clearly erroneous.

*Myriad* also makes it clear that it is **not the form** of the claims that is relevant to consideration of patentability, **but the substance** of the claims.



# *Myriad*

See also *Virginia-Carolina Chemical Corp's Application* [1958] RPC at page 37:

“In considering whether or not an application discloses a patentable invention, it is proper that attention should be directed to the alleged contribution to the art rather than the form of the words tentatively put forward as defining the invention.”

“The way in which a claim is drafted cannot, however, transcend the reality of what is in suit... Whatever words have been used, the matter must be looked at as one of substance and effect must be given to the true nature of the claim.” [144]

Gageler and Nettle JJ referred to the law as requiring “ingenuity that adds to the sum of human knowledge” [130], and considered what the applicant invented in comparison to the existing state of knowledge [137], [140]. Gordon J also noted that the patentee did not “create, make or alter” [267] the specific mutations and polymorphisms.

It is necessary to compare the invention as claimed to the state of the art to determine what has been added to the sum of human knowledge by the work of the inventor.



## *Research Affiliates*

Claims were directed to a method of creating a securities index by means of a computer. The claim involved:

- Accessing data, processing data, accessing and applying a weighting function, assigning weightings, generating an index

Their honours conceded at [9], that there was no issue in the claim having economic significance. Clearly this alone is not enough for patentability.

The specification only contained a general reference to computers.. and for that matter, the fact that an analyst **may** use a computer. See [67]-[68]

*Research Affiliates* made clear that “there is a distinction between a technological innovation which is patentable and a business innovation which is not”.



## *Research Affiliates*

“The determination whether the claimed invention is truly *“an artificially created state of affairs”* in satisfaction of *NRDC* is made not by some mechanistic application of the criterion of artificiality or physical effect, but by an understanding of the claimed invention itself. The invention is to be understood as a matter of substance and not merely as a matter of form.” [106]

The decision notes that the invention could be performed using Excel.

- “From the evidence, it cannot be said, as it was in *IBM 2* at 225-6, that the claimed method and the use of the algorithms involved steps which are **foreign to the normal use of computers.**” at [110]
- “There is **no technical contribution** to the invention or artificial effect of the invention by reason of the intervention of the inventors.” at [114]
- “The specification makes it apparent that any inventive step arises in the creation of the index as information and as a scheme.” at [118]



# RPL

Claims were directed to a method and system for collection of information relevant to assessment of a person's competency for a recognised qualification standard. The claim involved:

- Computer retrieving criteria via the internet from a remotely-located server,
- Computer processes the criteria to generate automatically a plurality of questions,
- Presenting the questions via the internet to a computer of an individual requiring assessment,
- Receiving responses from individual, wherein response includes a file upload.

Commissioner submitted that mere implementation of an abstract idea or scheme in a well-known machine, a computer or computers, is not sufficient; merely the presence of an 'artificial effect' is not sufficient... Identifying at [75] touchstones in *Research Affiliates*:

- Whether the claim steps define normal use of computers
- Whether the method creates an improvement in a computer
- Whether any unusual technical effect is utilised
- Whether any aspect of inventiveness (or innovativeness) lies in computer implementation
- Whether the invention is a new use for computer



# RPL

Their honours reiterated *Research Affiliates* discussion of business vs technical innovation

The fact that a method can only be performed in a computer is insufficient in itself ([107])

Confirmed that “simply putting a business method or scheme into a computer is not patentable unless there is an invention **in the way** in which the computer carries out the scheme or method”.

- It would seem this must be more than “**what**” the computer is doing, and instead be more like “**how**” the computer is actually operating such that the computer itself is improved

“RPL Central does not claim any invention or ingenuity in any program or operation of a computer... Accordingly, the ingenuity must be in the steps of the method itself... [this being] a scheme or business method”



# *Aerotel (UK)*

*Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1* [2007] RPC 7

Under Section 1(2) of UK Patents Act, things that are not inventions are...

- a mathematical method... a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer... the presentation of information...
- Only to the extent that a patent relates to that thing **as such**

The four step test applied in the UK

1. properly construe the claim;
2. identify the actual contribution;
3. ask whether it falls solely within the excluded subject matter; and
4. check whether the actual or alleged contribution is actually technical in nature.

The Full Court in *Research Affiliates* noted that the second step requires the court to consider what the inventor “has really added to human knowledge”, looking at substance and not form.  
[29]-[30]



# *Bringing it together – Patent Office Practice*

Manual of Practice and Procedure at 2.9.2.2 Principles for Examination

In general, the principles set out in *D'Arcy v Myriad Genetics Inc* [2015] HCA 35 (*Myriad*), *Commissioner of Patents v RPL Central Pty Ltd* [2015] FCAFC 177 (*RPL*) and other cases suggest that examiners can approach the examination of manner of manufacture in a way similar to that formulated by UK authority in *Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1* [2007] RPC 7 (*Aerotel*) as follows:

1. **Construe the claim.** (This is a “no brainer” step 1)
2. **Identify the substance of the claim (what is the alleged or actual contribution?)** (Clear from case law primer that we need to understand where “inventiveness” lies, this may include prior art)
3. **Ask whether the substance of the claim lies within established principles of what does not constitute a patentable invention (e.g. is it merely a scheme, plan, rules of gameplay, intellectual or genetic information?)** (Merely applying traditional principles to the substance)
4. If not, consider whether the substance otherwise lies outside of existing concepts of manner of manufacture and is to be treated as a “new class” of subject matter. (This leg of the approach will only be used in rare situations; see [Is the Claim for a “New Class” of Subject Matter?](#) below).



## *How can we identify the substance?*

There is clear reference in the above decisions to the idea that inventiveness or ingenuity needs to lie in computer implementation to elevate a claim above a mere scheme/business method:

- “The specification makes it apparent that any **inventive step** arises in the creation of the index as information and as a scheme.” *Research Affiliates* at [118]
- “simply putting a business method or scheme into a computer is not patentable **unless there is an invention in the way** in which the computer carries out the scheme or method.” *RPL* at [107]

Myriad at [12] points to a determination of the substance of the invention that may involve consideration/understanding of the prior art:

- “This appeal, however, collapses the anterior and subsequent questions — “Is there an invention?” and “Is there a patentable invention?” — into one inquiry. That inquiry requires a definition of the **allegedly patentable invention**. **That definition** depends upon the construction of the impugned claims read in the **light of the specification as a whole and the relevant prior art.**”



## *Indicators for considering issues?*

When considering patentability of ICT related inventions, there are a number of factors that one may consider (approximately 11 factors). Importantly this is a non-exhaustive list that serves to function on a case by case basis. See *Aristocrat Technologies Australia Pty Limited* [2016] APO 49 at [35]

Some examples include:

- is the contribution of the claimed invention technical in nature
- does the invention solve a technical problem within the computer or outside the computer
- does the invention result in improvement in the functioning of the computer, irrespective of the data being processed
- does the method merely require generic computer implementation
- is there ingenuity in the way in which the computer is utilised



## *Practical Issues – Patent Office Practice*

This determination is relatively straight forward for single computer function like *Research Affiliates*. The substance is quickly identified as unrelated to computer technology.

One might say this becomes a little more complex in RPL as there is more than one computer involved. Nonetheless the architecture of RPL is nothing more than “the internet” (see figure 1 of RPL specification) with no ingenuity or inventiveness being present in how the computers do any steps.

Quite clearly, in many jurisdictions, in the courts and at the relevant patent offices, there has been and continues to be difficulty. Our approach appears to have evolved into a very similar approach to the UK which seems to produce reasonably predictable outcomes in a similar manner to EPO, although via different mechanisms.



## *Practical Issues – Patent Office Practice*

So our approach is to simply follow these rules. We encourage examiners through the guidance in our manual to follow a structured approach, not with an agenda towards a particular claim or technology but with a case by case analysis. We “step back” and assess the substance and not the subject matter of a claim.

We see problems where one seeks broad subject matter principles. They do not exist. Must step back and determine the substance, often deciding if the method performed by known technical means (computers) is classically patentable.



## *The grounds are considered separately*

On the “interplay” of grounds we do not consider a “substance of invention” approach which involves understanding of the common general knowledge or the prior art base is problematic.

However, we note that “substance” may change based on an altered understanding of the art during prosecution.

See *Encompass Corporation Pty Ltd v InfoTrack Pty Ltd* [\[2018\] FCA 421](#)

Also See MPP 2.9.2.2 which states:

“Put another way, manner of manufacture assesses whether the contribution of the invention is directed to the **“type” or “nature” of subject matter** that should attract patent protection, whereas novelty and inventive step assess whether the contribution is “significant enough” or “whether the degree of contribution **sufficiently advances the art**” when compared to the prior art.”



## *Examination reports*

We recently developed a framework for examiners in drafting manner of manufacture objections that follows the structure I have discussed.

Importantly, we invite you to engage with this structure (and the logical approach I have outlined earlier) to the greatest extent possible when prosecuting applications before the office.

We consider that carefully following the framework laid down by the key decisions enables a clear decision regarding patentability to manifest. In this sense, while it may be a bit of work to arrive at a decision as to patentability, there is a strong degree of predictability in the outcome.

I will show you this framework so you know it when you see it in use.



# *Examination reports*

Firstly we invite the examiner to carefully identify the substance of the invention by considering:

- How does the claimed invention work?
- What problem does it address?
- What is the result of performing the claimed invention?
- What was the state of the art as at the priority date?
- What does the claimed invention add to the state of the art?
- What are the advantages of the claimed invention?

Then we invite the examiner to consider whether this substance is patentable subject matter by thinking about:

- Is the contribution to the claimed invention technical in nature?
- Does the claimed invention solve a “technical” problem within the computer or outside the computer?
- Does the claimed invention result in an improvement in the functioning of the computer, irrespective of the data being processed?
- Does the claimed invention merely require generic computer implementation?
- Is the computer merely the intermediary, configured to carry out the method, but adding nothing to the substance of the idea?



# *Technical Problems... Technical Solutions... Schemes*

Whether there is a technical solution to a technical problem is not **THE** test, but can be considered another way of conceptualising the issues already discussed

What is a technical problem?

- How to improve a manufacturing process to produce a stronger material
- The search for a drug to cure a particular cancer
- The search for a golf ball that travels further with the driver, and is softer around the greens

Some things are plainly technical. The issues that are addressed by a claim **can be** plainly technical, and the solutions to these problems **can be** plainly technical.

These ideas fall under a broader question of whether the invention is technical in nature.

- Known computer implementation does not produce an invention that is technical in nature. “Technicality” or “material advantage” must lie within the substance of the invention.



# *Technical Problems... Technical Solutions... Schemes*

What sorts of problems and solutions are not technical?

- Examples include situations where no technological advance is present in the substance
- Improving safety of a workplace; sorting minerals for economic reasons; improving customer or user experience; preventing access to a system; improving efficiency or effectiveness of a transaction

In *Grant v Commissioner of Patents* [2006] FCAFC 120, the Full Federal Court affirmed that “Business, commercial and financial schemes as such have never been considered patentable” and pointed out that patents have been refused for methods of calculation, theoretical schemes, including business schemes and abstract plans.

A “method” performed by ICT where the ICT is not part of the substance of the invention will likely be classified as a “scheme” if it fails the guidance I have set out earlier. Here the method would not involve a technological aspect or material effect as required by the case law.



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (measurements)*

Measurements that comply with the requirements of *NRDC* are considered patentable subject matter. Seismic Data processing is a common type of measurement that uses algorithms to produce improved data representing the material world (utility in practical affairs).

Data is gathered and processed according to an algorithm in order to better identify parameters, qualities, location of a mineral deposit. (IPC: G01V)

As per the PMPP at 2.9.2.10

‘The distinction to be drawn is between a claim to an algorithm (or scientific principle or natural phenomenon) in the abstract sense and the application of the formula to a process such that it produces “some advantage which is material, in the sense that the process belongs to a useful art as distinct from a fine art”.’



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (measurements)*

A method comprising:

collecting data from one or more measurements of a structure;

applying a processing unit to the data forming an optimization

relationship such that elements of the optimization relationship are analytically calculable based on the use of an integrable function in the optimization relationship, the integrable function derived from the collected data; and

applying the processing unit to extract properties of the structure corresponding to the collected data.

- *What is this claim doing? Collecting some data about a structure, forming some relationship, extracting properties .... very broad*
- *What are the problems with this claim?*
  - *What measurements? What optimization relationship? What integrable function? What properties are extracted?*



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (measurements)*

A method comprising:

collecting data from **one or more measurements of a structure**;

applying a processing unit to the data forming an **optimization**

**relationship** such that elements of the optimization relationship are analytically calculable based on the use of an **integrable function** in the optimization relationship, the integrable function derived from the collected data; and

applying the processing unit to **extract properties** of the structure corresponding to the collected data.

- *What is this claim doing? Collecting some data about a structure, forming some relationship, extracting properties .... very broad*
- *What are the problems with this claim?*
  - *What measurements? What optimization relationship? What integrable function? What properties are extracted?*



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (measurements)*

Section 40(3) objection manifests

If no such mathematical algorithms or particular implementation techniques are described, then it might be appropriate to consider an objection under s40(2)(a) and/or s40(2)(aa).

Is the claim for a manner of manufacture?

- If the claim is limited to an improved algorithm for more accurately measuring particular physical properties/characteristics of subterranean structure then YES
- However if the claim is so broad so as to not manifest the “material advantage” of an improved measurement then we may object as to a lack of manner of manufacture in addition to the s40 objection.
- Overcoming a section 40(3) objection will most likely overcome a manner of manufacture objection



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## Examples (GUIs)

*Aristocrat Technologies Australia Pty Limited [2016] APO 49 (Aristocrat '16)*

*Aristocrat Technologies Australia Pty Limited [2017] APO 1 (Aristocrat '17)*

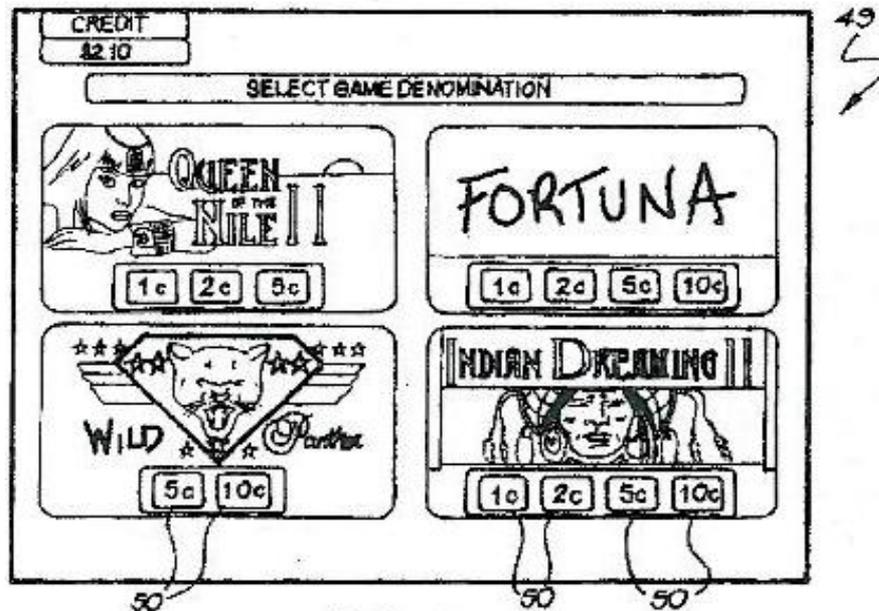


FIG. 4



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (GUIs)*

### *Aristocrat '16*

A gaming machine including a controller and a touch sensitive electronic display, the controller being arranged to cause a game selection image to be displayed on the electronic display, the game selection image including a plurality of separate image elements including:

- a) name of a game that is available for play on the gaming machine; and
- b) a set of different bet denominations for the game, wherein at least one of the sets of denominations of at least one of the separate image elements is different to the set of bet denominations of at least one other of the separate image elements,

the gaming machine being further arranged to allow a player to select a game and a denomination by touching the touch sensitive electronic display where a respective denomination is displayed.



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (GUIs)*

### *Aristocrat '16*

The claim is to an arrangement of options on a display wherein there is an association between those options such that the interface provides functionality that appeared to be a contribution to the art

One can say that the effect is the selection from two degrees of freedom of particularly presented options, with one action, which was an improvement in the [gaming machine] interface (see the decision at [48])



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (GUIs)*

### ***Aristocrat '17***

The claim was drawn from the same figure however, a player made a first selection of one of the plurality of games, and then a second selection of one of the plurality of associated bet denominations.

This invention was now taking advantage of normal “sequential” selection processes in an interface.

The substance of the invention was simply what was presented on the screen, there being an “association” between elements.

The hearing officer found that there was no technical contribution. Unlike Aristocrat '16, there was no interface functionality that could be considered contributing to the art.



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (Computer implemented business)*

*AirService Digital Pty Ltd* [2018] APO 39

A method of placing orders at a retail venue including a venue data device and having a plurality of customers each of whom has a mobile data device, said method comprising the steps of:

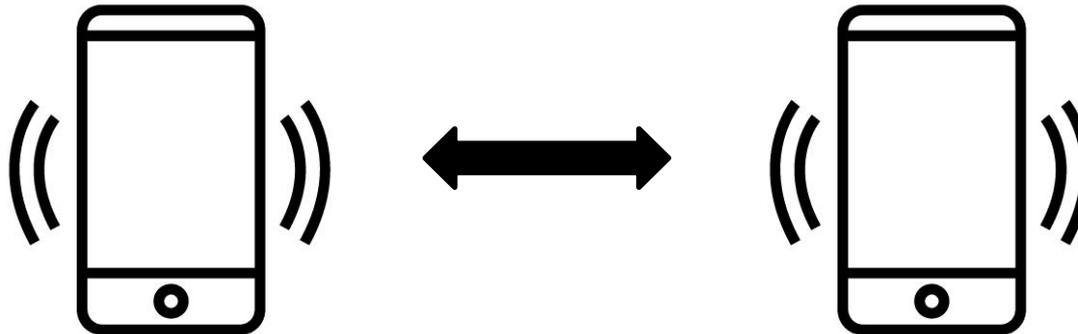
- (i) said venue data device uploading a venue menu to an internet site;
- (ii) downloading an order application from said site to the mobile data devices of said customers;
- (iii) said venue data device allocating a customer unique customer identification code to each said customer such that only one customer unique customer identification code is allocated to each said customer and storing said code in said mobile data device of the corresponding customer, and
- (iv) displaying the venue menu on said mobile data device to allow a customer allocated a corresponding one of said customer unique customer identification codes to access said menu via his mobile data device to order one or more items from said menu.



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (Computer implemented business)*

What is the “technological architecture” of the invention?



Venue Device

Customer Mobile Data Device

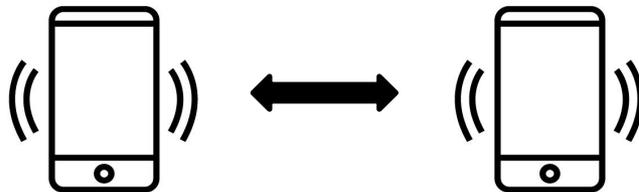
The differences between the state of the art and the claimed invention include the fact that the data source was not “central” but it was a “venue”, and also the particular steps of the method



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (Computer implemented business)*

There is clearly generic architecture, and no technical innovation in the devices



Venue Device

Customer Mobile Data Device

The substance of the invention could be characterised as:

- A venue providing a menu
- The venue providing an order application form
- The venue allocating a unique customer ID to each customer
- The customer storing the ID locally
- The customer placing an order of an item from the menu

This is business innovation and not technical innovation.

See also *Google LLC* [2018] APO 44



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (patentable software – unpatentable software)*

Under Australian Law there is no specific exclusion for patents to computer programs. In practice our law works very similar to the “as such” exclusion in the NZ, UK. There is a clear distinction between software with technical effects, and software without.

Explanatory note to NZ provisions is a good encapsulation of our approach. It reflects a substance test which considers the contribution to the art and aligns with the IPA guidance to examiners

### *A process that may be an invention*

- A claim in an application provides for a better method of washing clothes when using an existing washing machine. That method is implemented through a computer program on a computer chip that is inserted into the washing machine. The computer program controls the operation of the washing machine. The washing machine is not materially altered in any way to perform the invention... the actual contribution is a new and improved way of operating a washing machine that gets clothes cleaner and uses less electricity...
- While the only thing that is different about the washing machine is the computer program, the actual contribution lies in the way in which the washing machine works...



1. **Construe the claim**
2. **What is the substance?**
3. **Is the substance a MoM?**

## *Examples (patentable software – unpatentable software)*

The previous can be considered to produce a “technical effect” ... solve a “technical problem”... It improves the working of a machine.

*A process that will not be an invention*

An inventor has developed a process for automatically completing the legal documents necessary to register an entity. The claimed process involves a computer asking questions of a user. The answers are stored in a database and the information is processed using a computer program to produce the required legal documents, which are then sent to the user. The hardware used is conventional. The only novel aspect is the computer program.

... The mere execution of a method within a computer does not allow the method to be patented. Accordingly, the process is not an invention for the purposes of the Act.

The substance of claim in accordance with this, using generic or known implementation, will lie purely in the method steps. If the method steps are not patentable the claim will fail.



## *Section 40... The quid pro quo*

It is clear that there is a relationship between section 40 and manner of manufacture. Where a description discloses no technical difficulties and the invention is in the area of business innovation, then manner of manufacture issues will likely arise.

In creating an invention, there may be complexity, but the specification often doesn't tell us about it

- Importantly, this “undisclosed” complexity may well be “technical” complexity
- Without such material in the specification, the invention is almost always subsequently described in the context of generic computer implementation, leading to “abstract” claims that describe functional steps
- The specific algorithm thus appears absent from the specification, and there may be good strategic reasons for this

Such issues, particularly in the context of software patents, suggest that if an examiner could be convinced that a technical effect is produced, then the specification would likely fail for s40(2)(a) and (aa).



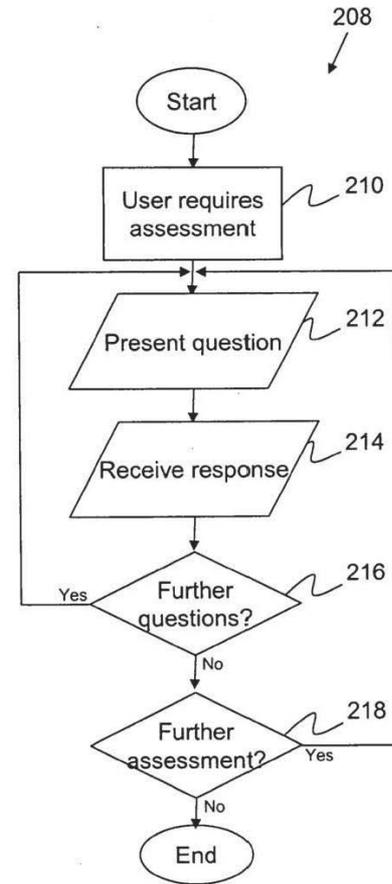
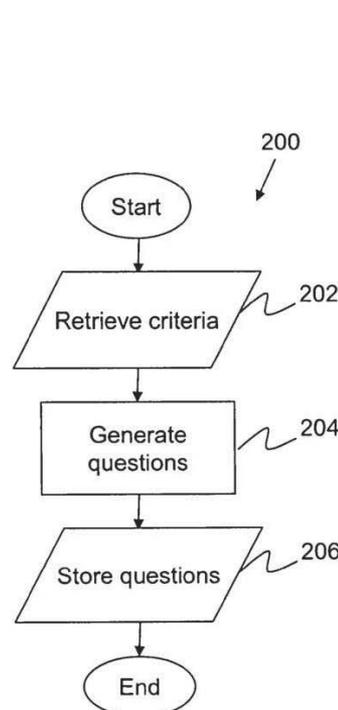
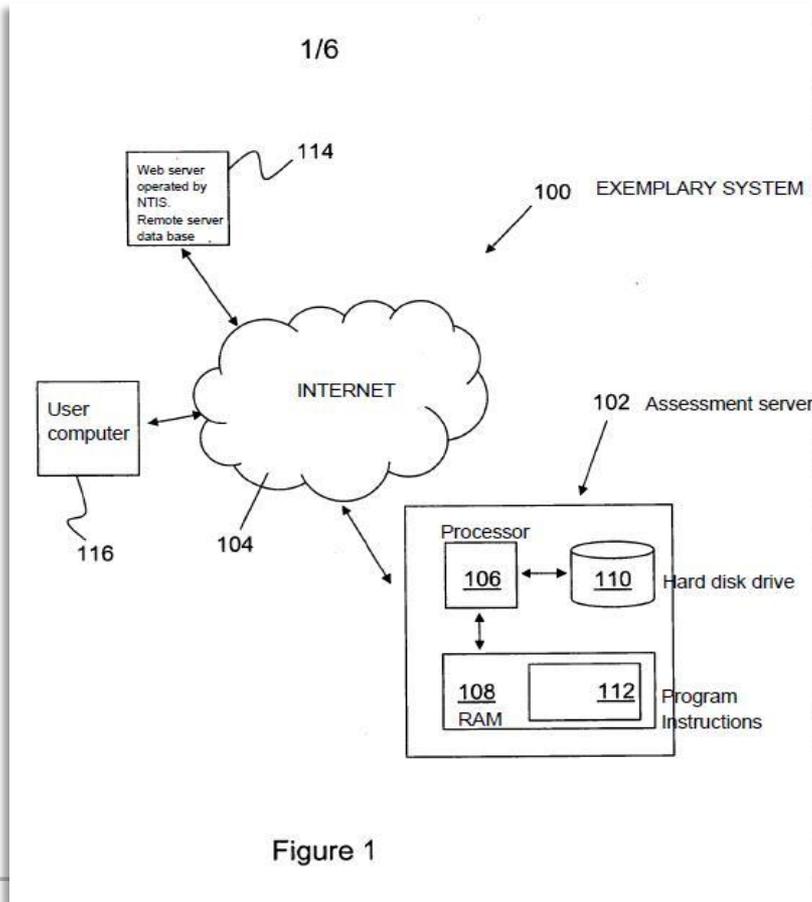
## *Section 40... The quid pro quo*

The solution to the difficulty in getting some claims to acceptance may well be a more detailed disclosure. This is the *quid pro quo*, and a decision an applicant must make.. i.e. *Do I disclose my algorithm or not?*

An example of this is the description of generic technology and the associated functional description of the invention in RPL. See figures 1 and 2a of the RPL application.



# Section 40... The quid pro quo





## *Take home messages*

Contrary to some popular belief, there is no “war” on ICT patents. 😊

- Across the years 2014-2016 by year of examination request, acceptance rates in computing technology are in the range of around 50-60%. <https://blog.patentology.com.au/2018/05/examination-allocations-delays-and.html>

Under Australian law, there are no specific exclusions for software or methods that are implemented as computer software or a related product.

The law seems to suggest that computers and computer systems are “method doing machines” and if an invention does not improve computer technology in some way, the technicality or material advantage must be found in the particular method steps which are merely computer implemented.

In prosecuting an application, you should engage with the framework as closely as possible

- By considering the substance of the invention with an understanding of the prior art base
- Asking the questions posed by *Research Affiliates* and *RPL*



## *Take home messages*

The task is necessarily a case by case analysis. Unless exact overlap with an earlier case or decision exists, then drawing analogies with other decisions is unlikely to succeed.

Understand that as prosecution progresses and arguments evolve, the identified substance of the invention may evolve and this may affect a manner of manufacture finding (and also s40). It may not be possible to have all such issues on the table from the first report but we will endeavour to do so.

Detail, detail, detail... Maybe you have an invention in reality because of the algorithm you use (resulting in technical effects). But if the specification doesn't describe the details of a particular algorithm or technical effect, the invention could be considered abstract because it is described and claimed at too high a level (functional drafting and s40 issues) and looks like generic implementation.



Australian Government

IP Australia



*Thank you for your time*

Nathan Madsen

Supervising Examiner

Data Processing and Measurements

[Nathan.Madsen@ipaaustralia.gov.au](mailto:Nathan.Madsen@ipaaustralia.gov.au)