The Future of Operational Research in the Post Modern Workplace

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Abstract

Operational research is a process of making decisions, or at least providing insights which lead to decisions, in an objective, scientific way. The primary tool of operational research is the mathematical model.

For operational research to work everyone concerned must think of the workplace as an object, which can be analysed mathematically, modified, and reshaped. It also requires a strong management structure, so that decisions can be implemented.

But we are moving into a post modern world in which the workplace is considered to be an organic, living being, and management should be by consensus. Businesses are not mechanical objects. They cannot be manipulated, restructured, experimented on without damaging their ability to achieve success. There is less confidence now in the hierarchical style of management. It is recognised that all staff should be allowed a share in decision making and everyone has a useful contribution to make.

What will the post modern business be like? What are the trends? Will there be a place for operational research in it? Is operational research possible in a democratic workplace?

1   The 'Learning Organisation'

The 'learning organisation' is a term introduced by Peter Senge. It is a style of management that has been advocated in USA by the MIT Dialog Project, and in NZ by Pamela Mazoyer, Senior Advisor, Ministry of Research, Science, & Technology. It involves restructuring the business to fit a post modernist philosophy.

If it truly is a 'learning organisation' the whole business learns as it progresses.

2   The Modernist View of the World

The Modern movement started in the late 19th century. Fundamentally it is based on the Cartesian perspective of the world: Rene Descartes (1596 - 1650) was the first of the 'modern' philosophers.   He had a keen mind and a wide range of interests: mathematics, politics, certainty & the definition of

knowledge, meaning of existence, mind/body problem (how the insubstantial mind can affect the body). He published a number of books in his lifetime, and also engaged in correspondence with intellectuals all round Europe, which was afterwards collected and published. For the next two centuries he was widely read and discussed, and his influence is with us still. For our purposes three of his key philosophical principles and their implications are particularly relevant, viz:

a   The world is an objective place. Therefore each object has its own properties (independent of the observer), and only measurable properties are significant, (the unmeasurable eg beauty, honesty, friendship, &c are illusory, insignificant, or immaterial). Another implication is that you (the observer) are separate from the world.

b   The universe acts in accordance with the laws of nature, is consistent, has predictable causes and effects. A consequence of this is that you must take the blame for your mistakes. You cannot blame chance or fate for your failures.

c   The way to solve a complex problem is to divide it into manageable parts, focus on each sub problem in turn, do not try to deal with the whole problem. Accepting this principle implies that the holistic approach is neither necessary nor indeed valid. This concepts lead to specialisation.

The modern movement, which started in the second half of the nineteenth century was based partly on the Cartesian world view but also on experience. Modernists believe that continual, unhindered progress is inevitable, as long as we put our faith into science, technology, education, and a pro active attitude (face up to problems, and deal with them - take control). The modernist believes that the world is there for us to control for our benefit.

3   The Post Modernist View of the World

By the middle of the twentieth century there was a growing disillusionment with modernism, and a belief that it had failed. The Nazis were surely the most 'modern' government that the world had seen. They embraced the very latest science and technology. The German people were the most educated in the world. And they were ruthlessly pro active. But it was not until the late 1960s that there were popular misgivings in the English speaking world about modernism. Questions were asked. Was science destroying the world not saving it? What about nuclear waste disposal, chemical pollution, contamination, weapons of mass destruction?

The late nineteenth and early twentieth centuries had applied modernistic principles to design. It was believed that design should be objective, not subjective. Design should be on scientific principles. The measure of good design is the product's 'fitness for use'. Form must follow function. But when this was applied to architecture, we got dull miserable cities, dominated by unfriendly high rise concrete blocks, bad to work and do business in, badly ventilated, poor for communication, with slow unreliable lifts. Modernism in design did not always produce good architecture, city planning, nor good products

So, a new philosophy has started to emerge: 'Post modernism', in which reality is in the mind of the observer. To a post modernist, not only does each culture see the world differently. But there are indeed different worlds for each culture. Each person & culture have their own version of reality.

The implications are that all views are valid, and must be given respect. Because there is no objective reality, symbols become of paramount importance. The golliwog becomes the symbol of racism, and therefore must be banned. The most importance symbol is language, which must in order to show respect to every group, be free of gender, and any racism which may be read into what we say or write.

Now, at the beginning of the twenty first century, we have largely adopted post modernism, but we have not totally rejected modernism. The philosophies are contradictory, but somehow live side by side.

4   New Trends in Management Philosophy

A modernist looks at management in simple terms, ie the purpose is to make money. Resources include people, equipment, land, buildings, capital, &c. The legitimate process of business is to manipulate the market, resources, &c to achieve its purpose. A good test to see whether a business is based on modernistic principles is that people will treated as just objects of transactions.

The question is: can a business successfully adopt a way, that will eliminate the drawbacks of modernism, without introducing the ludicrous aspects of post modernism?

If there is a new way, does operational research have a place in the transformation? ie can we operational research practitioners offer help and support to the business as it goes through its transformation?

Most operational research is done to assist businesses grapple with the new, and the unknown. When a technique or process becomes routine, either the staff can usually cope without outside help, eg: industrial engineering, computerised accounting systems, quality management, or there is a lot of competition to provide the service, eg: recruitment, training, computer installations

The opportunity for operational research occurs at the start of an innovation, before management have learned to grapple with its complexities.

If we do decide there is a new trend and that operational researchers should be part of it, how can we help a business (potential client) which wants to part of the new movement? We must look at ways a business, in the process of transformation, can adopt new strategies, organisational structures, new ideas, new products, &c. Would this be something that operational research could do?

If we are going to be part of the new movement we must decide how operational research would be involved, and what we as practitioners need to do to prepare themselves.

But whether or not operational research can contribute to the process of transforming a business into a 'learning organisation', we should also ask if operational research will have a place after a business has been transformed. In our normal mode of working, the operational researcher reports to a senior manager, who wants the project done and has the power to implement the solutions determined by the operational researcher. But in a 'learning organisation', the manager concedes power to the staff, to tap into their collective wisdom. Can operational research projects be undertaken in such an environment?

5 Transform the Business to a 'Learning Organisation'

Many businesses have implemented programmes (eg technical innovation, efficiency, quality, environmental, safety, &c) which simply do not work. The problem almost always lies in the lack of commitment. Perhaps the management only give lip service to the programme, or staff are not personally involved, or there is no common purpose. In my experience most new programmes are imposed on the staff, not developed by them.

How, therefore, can businesses be restructured so that their potential can be achieved? It must reframe programmes so they can achieve their potential. The resources of the staff must be tapped, so everyone becomes totally involved and committed to the programme.

6 Adopting Concepts

If a business is to transform itself to a 'learning organisation' it is essential to adopt certain concepts eg:

a   primacy of the whole, ie accept that
         Relationships are more fundamental than things
         The world (specifically the workplace including suppliers, customers, neighbours and staff) is inter related
         We need to see ourselves as part of the solutions. We are not just observers outside the world.

b   The business must encourage the belief in the community nature of the self, ie accept that:
         We are imbedded in our cultures. ie we are affected by our up bringing, education and early employment history, &c.
         Our stories are those we have learned to construct. ie we are what we believe ourselves to be.
         Others are fellow human beings with whom we can learn and change - not just objects of transactions

c   There must be an acceptance of the generative power of language, ie accept that:
         Thenature of the world depends on the way we describe it
         We change the world as we perceive it
         This gives us the power to reveal new realities
         Recognise that naive realism leads to rigidity in our thinking and belief systems.
         (In naive realism - the Cartesian perspective - reality is a given

entity independent of our perception or the way in which we observe it)

7 Adopt Appropriate Theory, Methods, & Tools

To allow the business transform itself to a 'learning organisation', it must actively promote techniques for exploring new ideas. Training, guidance & mentoring, will be needed.

Individuals would be encouraged and trained to adopt reflective practices to develop their personal vision and attain moments of awareness. Each person should be encouraged to ask the questions: What is happening now? What do I want? How am I preventing this? What would I choose? If strong emotions arise, time will be made for skilful discussion about them

Groups would be helped with mentors to adopt interactive practices to develop a shared vision, to listen with involvement but without resistance, to reflect, to slow down, to enquire about the other's assumptions, to recognize that there is almost always an unstated belief behind each statement that the other person makes. The processes will improve with practice and support

8 Improve Advocacy Skills

The 'learning organisation' is one in which new ideas are readily adopted. So, a business which is a 'learning organisation', will be readily able to identify, develop and implement new programmes, new technologies and to develop and market new products.

The difference between a 'learning organisation' and an ordinary business is that the 'learning organisation' will be able to recognise an idea which has potential, and then develop and promote it, so that it will be accepted and owned by everyone. The advocacy skill which are essential to achieve this situation, include having everyone involved and being able to:
a   State their assumptions and how you came to them
        Here's what I think and how I got there
b   Explain their assumptions
        I assumed that ...
c   Make their reasoning explicit
        I came to this conclusion because ...
d   Explain the context, who will be affected and why
        To get a clear picture on what I'm talking about, imagine that you're the person who is affected
e   Give examples
f   Try to picture the other person's perspective on what you say

9 Ask Others to Make their Thinking Visible

Mangers are busy people. But if the business is to become a 'learning organisation', everyone must being given the opportunity to make their thinking visible, ie:
a   Gently walk down the ladder of inference to find the data

What leads you to conclude that?
b   Use unaggressive language, so their ideas are not stifled
What causes you to say that?
c   Draw out their reasoning
Can you help me understand your reasoning here?
d   Explain their reasons, concerns, hopes, and needs
I'm asking about your assumptions, because ..

10   Test Your Conclusions and Assumptions before Coming to a Decision

If you are a manager in a 'learning organisation' you will take the time to test your conclusions before coming to a decision, by following the process of:
a   encouraging others to explore your model
Can you see any flaws in my model?
b   not being defensive when your ideas are questioned
What can you add?
c   revealing where you are least clear in you thinking
Here's some aspects that you might help me think through ...
d   encouraging different views

11   When You Disagree

The manager in a 'learning organisation' has to learn to cope with disagreement without becoming defensive or autocratic, by finding out what the disagreement is really about, and if the other person know something that manager has has not thought of, ie:
a   Ask what lead them to this view
Are you taking account of data I have not considered?
b   Make sure you truly understand their view
If I understand you correctly, you are saying ...
c   Explore, listen for the larger meaning, and offer your own views in an open way
Have you considered ...?
d   Raise your concerns and state what leads you to have them
I have a hard time seeing that because ...

12   When You Are at an Impasse

The 'learning organisation' will have methods to deal with issues when there is an impasse.
a   by teasing apart the current thinking (the data may clear the way)
What do we know for a fact?
What do we sense, but have no data for yet?
What is unknowable?
b   by listening to ideas as if for the first time
c   by seeing each person's mental model as a piece of a larger puzzle
Are we starting with different assumptions?
d   by not stopping with an agreement to disagree
Have you any ideas that will help clarify our thinking?

13   Team Learning - Dialogue

In summary a 'learning organisation' is a business in which the whole staff form a team, all voices are heard, dissidents are included (it is assumed that they oppose a management decision because they have good reason, not because they are bloody minded), and new ideas can be identified, and adopted if they are good, so the organisation learns, changes, adapts, and prospers. It will be a challenging workplace, intellectually, socially, emotionally. It is not just problem solving. But when the roots of thought are observed, thought changes for the better. There will be a conscious collective mindfulness.

A business can claim that it is a 'learning organisation' when, in considering a new idea, it moves from 'a point of view', 'to viewing a point'.

14   Further Information

Visit the website of Hardin Tibbs Chief Executive - Synthesis Strategic Consulting Ltd: http://members.dynamite.com.au/htibbs/ It includes the paper 'Making the future visible: Psychology, Scenarios and Strategy', and "Making the future visible: Psychology, Scenarios and Strategy" which provide a link between learning organisation ideas making them more accessible to science technology and business.

Also his book 'Sustainability' particularly Chs 7& 8 has useful insights.

Another useful reference is the book 'Enabling Knowledge Creation' by Von Krogh, K Ichijo and I Nonaka.

You may also contact Pamela Mazoyer, Senior Advisor at the Ministry of Research Science and Technology, who provided much of the material and information for this paper. Her email address is pamela.mazoyer@morst.govt.nz