

METHODOLOGIES FOR BUSINESS DEVELOPMENT STRATEGIES IN A CHANGING ENVIRONMENT

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ABSTRACT

The report outlines the principles which are now being used to assist with investment decisions and strategy development in a changing regulated multi-criteria business environment. The aim is to provide guidance and understanding to electricity industry managers and planners when they have to choose how and where to invest scarce resources for optimised business development. The methodology and decision support software described are very flexible but do require careful facilitation. The system never provides the single answer but encourages organisations to focus on strategies and investments which are robust under a wide range of business environments. A typical case study for a quality of supply investment strategy is shown in the Appendix.

INTRODUCTION

The development of competition and the level of deregulation are now the new business drivers for the changing strategies necessary to be successful over the coming years and decades. Overlaid on this are privatisation, corporatisation and take-overs, mergers etc. The key to success for businesses in the electricity industry therefore is a flexible but focused strategy. This new business climate not only creates different threats but opens up new opportunities. The ability to build strategies which generate extra benefits requires the introduction of innovative approaches. At EA Technology, we have pioneered the use of multi-criteria modelling for a considerable number of electricity companies and corporations using decision support software tools linked with facilitated strategy decision workshops. The approach has been well received in UK, Scandinavia, Australia, New Zealand, and USA (California). The range of strategies that have been developed for distribution and network businesses include strategies for quality of supply, asset investment prioritisation, business development, IT restructuring, plant maintenance, and innovation prioritisation, as well as R&D and technology strategies.

In addition the techniques have been applied successfully for business development such as energy services strategies. A typical network business case study is illustrated in the Appendix, and the parallel paper⁽¹⁾ refers to a related network performance modelling project.

THE APPROACH

The techniques covered in this report are based on the socio-technical concepts which combine economic and decision theory with expert personal and group judgements⁽²⁾. These techniques are flexible, participative and cascable within organisations.

The real world is messy and strategy development must encompass opposing stakeholders, but often this leads to a fragmented approach to strategy formulation. Internal drivers can be conflicting (e.g. Engineering versus Finance) while external forces such as Regulatory uncertainty can also play a significant role.

The implementation of the process to distribution business strategy development in fields such as asset investment, quality of supply improvements etc, is not difficult but *must* be done in a consistent manner. The process needs to accommodate the knowledge and views of staff at different levels within and across the business.

Generally a three level approach⁽³⁾ can be adopted for a strategy or investment prioritisation exercise. The levels generally used are executive (policy forming), managerial (asset management) and operational (implementation).

The Leveraged Techniques

Typically the following techniques are combined in the strategy development process:

- Group facilitation, enabling managers from different functions to be brought together⁽⁴⁾
- Decision support tools, such as EQUITY software to assist with strategy model building⁽⁵⁾
- Creative generation of investment choices, for the agreed distribution business area
- Risk profiling, for investments and returns
- Real options evaluation, for specialised investment analyses

The outputs will be a customised application to a particular strategy area, such as asset investment prioritisation set against the weighted criteria for that particular business.

Facilitation

A facilitated workshop is one of the essential elements in this approach to investment strategy planning; allowing the integration of the many diverse types of cross-functional information that is available when a manager is attempting to rank and balance a number of initiatives, investments or projects. In the case of asset investment to meet regulatory requirements, the group would at a minimum include the Asset Manager, a relevant Financial Manager, the Regulatory Manager, an Operational Manager, and a Customer Service Manager.

Facilitation is not chairing a meeting. It involves working through a process or method with a group, ensuring the right information (both factual and qualitative) is agreed and analysed. Managing group dynamics is an important role of the facilitator, requiring listening, ensuring procedure is followed and intervening when necessary in a constructive way. Another task of the facilitator is to ensure that all key interests are properly represented.

Group involvement creates understanding, balances the differing objectives of functions, and generates commitment from which implementation can then proceed.

Decision Support Tools

The direction of the meeting is structured around the data requirements of the decision support software. Specially developed software is available for this purpose, but spreadsheets and database software can be used if the facilitator properly understands the process. It is critical that the software is used in real time within a facilitated group in order to capture the development of the group consensus. The case study described below makes use of EQUITY decision support software that assists with strategy development, resource allocation and investment prioritisation.

Generating Choices

In practice, companies seldom cover *all* of the potential range of choices when considering where their investment priorities should lie. It is a role of the facilitator to ensure that sensible choices are not overlooked.

Techniques such as management workshops, Delphi exercises and scenario building are useful in this process.

Delphi techniques in this context are used only for information gathering and not for decision making. The concept is in itself simple but the implementation is critical. A Delphi questionnaire must be structured to ensure the context is fully understood so that the responses are both valid and useful.

Once the boundaries of the investment decision area has been defined, the Delphi exercise is constructed, covering:

- background information
- responses to statements about the likelihood of achieving key targets; and how
- a number of questions which are more open-ended
- space for general observations

The purpose of the Delphi exercise is to bring in a larger number of staff at various levels in the organisation who would not be able to attend a facilitated workshop or decision conference. Introducing breadth and depth within the organisation; and sometimes outside it can generate a more interesting range of options.

Portfolio Modelling (and risk profiling)

Inherent in the approach is the use of portfolio techniques including risk profiling and management. Risk management and the related risk structure are critical in certain key decision areas such as switchgear replacement policy. Recent work in the USA, Europe and UK, indicate that multi-criteria modelling is probably the optimum approach in handling rare incidents that can have disastrous consequences such as switchgear failure or nuclear incidents. The techniques are also being introduced in the French nuclear industry to focus maintenance activities and asset replacement.

THE BUSINESS MODEL APPROACH

Initial Stages

The first step is establishing the framework and boundaries for the asset investment or strategy decision. Boundaries in this sense are all-embracing covering functions, physical or geographic location and time base or horizon. It is also necessary to have a quantified understanding of the organisation's objectives. If this is not already clear, a facilitated workshop is established to ensure that the key executives can contribute to the setting of clear objectives for the business. Within this process a number of elements are covered:

- vision and mission
- strategic choices, plans or options
- target setting
- tactical approaches; initial considerations

From our experience, a three level approach is often found to add real value.

Level 1: top level strategy development, which is often a case of refocussing existing initiatives

Level 2: middle management refinement of the portfolio prioritisation

Level 3: operational staff; who often have not been consulted in strategy development exercises in the past.

The Inputs

Historically, model building as part of a facilitated decision conference has been based on a mixture of factual data, such as investment costs, and engineering and business judgements. Recently work at EA Technology has taken this approach to a more sophisticated level by additionally using modelling results as key elements in the process. Typical modelling data which has been used in these EQUITY decision models includes distribution network performance data from software such as eaNSF, logistics data from eaFIRM, and real options values from modified Black-Scholes equations for evaluating investments under uncertainty. Over-riding all this data though is always the views and preferences established at the decision conference with the group of key managers.

The Decision Conference

The key event is the two day decision conference, the first one of which will produce the 'pathfinder' strategy which will be refined at further decision conferences.

The process that the facilitator takes the group through can be summarised as:

- introductions at which each participant is invited to express their views
- the business direction and focus which ensured that the options under consideration were relevant
- strategy model structure established through the use of the EQUITY decision support software used in real time
- criteria establishment; by which the options being proposed for each business area will be assessed
- agreement on the investment options
- establishment of the preference scales within the model from factual data, model inputs and business judgements
- weighting of the criteria for the strategy area
- weighting of the scales
- internal consistency checking and sensitivity analyses.

The synergies and benefits are inherent in the outputs of the model. The main outputs that the group produced are the two optimised portfolios of investment in quality of supply options which match the balanced business drivers of the Distribution business.

The synergies and benefits are encapsulated in the results of the sensitivity analyses. Differing value weights are entered and resultant changes in quality of supply strategy debated. From this, much information to support CAPEX and OPEX decisions can be gleaned.

Implications for the Quality of Supply Strategy and Related Investment Portfolio

The output from the strategy decision conference is a 'pathfinder' strategy model which is based on; the preferences, views and understanding of the participants, the importance of the various areas of business, and the drivers that impact the quality of supply for the network business. The 'best' and 'cheaper' strategies are defined as are the priority ordering of options so that for any level of resource investment the optimum portfolio could be seen.

The sensitivity to the relative importance of OPEX and CAPEX to the business could then easily be assessed by amending the relative weights of the criteria. The options that consistently are near the top of the priority listing under a range of scenarios are clearly robust and should be viewed as the 'safe bets'. Those that rise to the top under specific scenarios need to be viewed with a mixture of caution and optimism as if you can 'get it right' there may be big rewards in this area.

Example outputs are shown in the Appendix, and a real world project using these and related engineering and logistics modelling techniques are described in the parallel paper⁽¹⁾.

CONCLUSIONS

The approach to asset investment and business strategy outlined takes account of the diverse views within an organisation, but does not merely average out differing views. It enables companies to model the impact of the agreed decision criteria. By encompassing operational, management and executive viewpoints, the approach strengthens the coherent vision within a company, ensures all relevant perspectives are accounted for and generates the commitment for rapid and successful implementation of the favoured options.

It is also worthy of note that several UK electricity companies refer to the application of decision support tools for focussing investments on their key business drivers for Regulatory submissions⁽⁶⁾

APPENDIX: QUALITY OF SUPPLY STRATEGY MODEL

Figure 1 below shows the overall model structure; with the strategy area split into a number of areas, in this case customer groupings but it could equally well be voltage levels etc. For each area the status quo initiatives are defined together with a wide range of potential options to help the business achieve its vision.

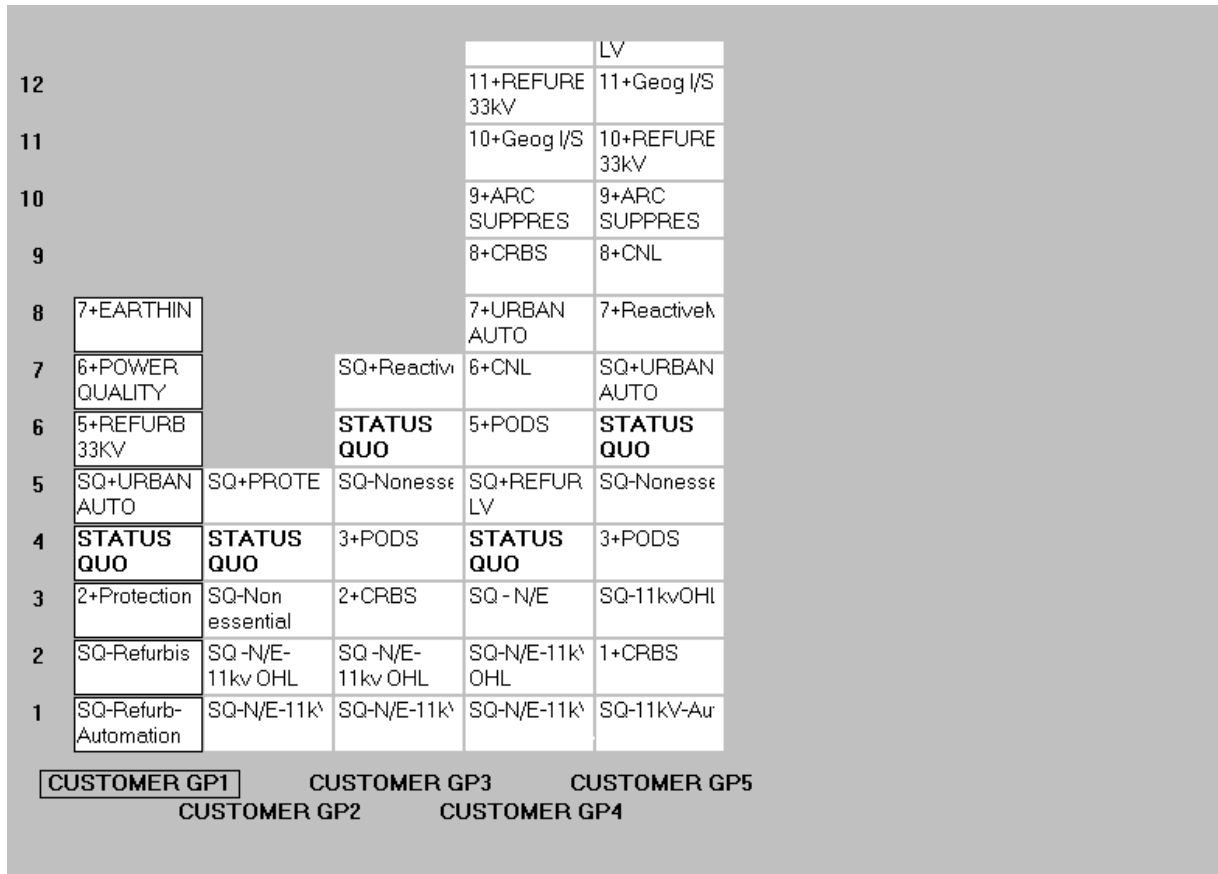


Fig. 1

Figure 2 shows the relative weights attached to the various criteria for each area; and the 'Across wts' which show the relative importance of the individual criteria to the business for this strategy.

	CAPEX			CASH FLW CMLs			INTR <1mn		CUSTSER	
	OPEX	CHG MNGT		PRFTBLTY	INTR >1mn	PWRQUAL				
CUSTOMER GP1	-	-	-	12	8	60	50	100	100	70
CUSTOMER GP2	-	-	-	5	8	12	12	80	80	30
CUSTOMER GP3	-	-	-	20	13	100	100	70	50	60
CUSTOMER GP4	-	-	-	46	45	25	20	70	50	50
CUSTOMER GP5	-	-	-	100	100	85	75	50	40	100
Across wts	100	20	1	100	100	80	70	15	5	84

Figure 2

Figure 3 shows the 'efficient frontier' where;

P = the proposed strategy (status quo)

C = the minimum cost portfolio which maintains the level of net weighted benefits

B = the optimum benefits portfolio which costs no more than the status quo portfolio

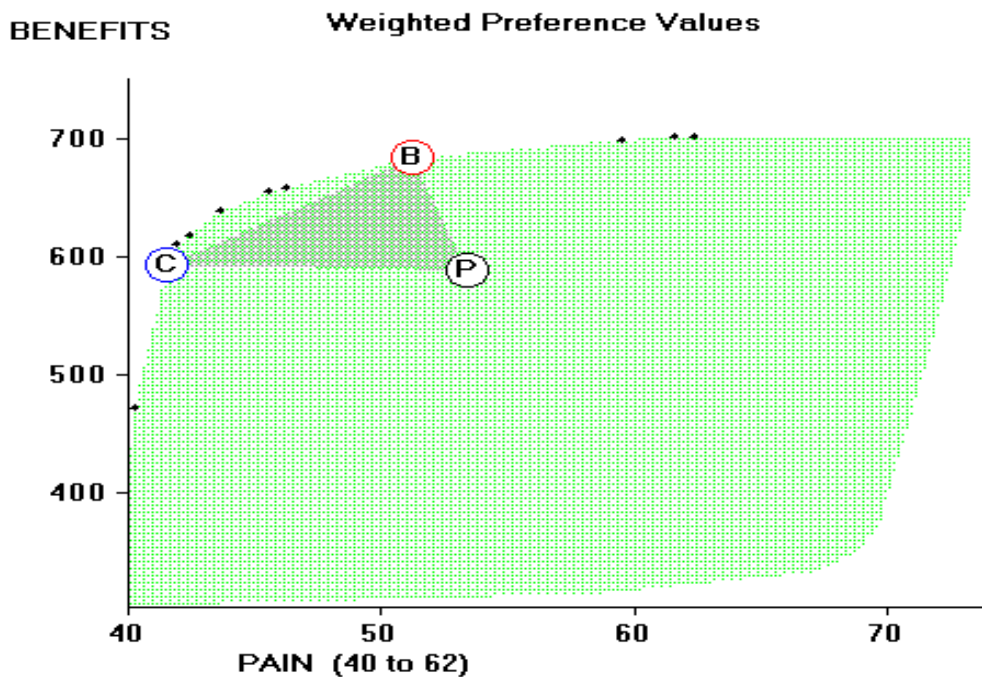


Fig.3

In addition, when the decision under consideration is an investment prioritisation across a number of equipment types or business areas, an 'Order of Buy' can be produced which shows the order of investment priority based on the values and weights within the model.

				PAIN		BENEFITS	
AREA	LEVEL	INC	CUM	INC	CUM	INC	CUM
#1	3 CUSTOMER GP3	2	SQ -N/E- 11kv OHL	0	40	6	309
#2	3 CUSTOMER GP3	3	2+CRBS	0	40	30	339
#3	3 CUSTOMER GP3	5	SQ-Nonessential	1	40	132	471
C	1 CUSTOMER GP1	5	SQ+URBAN AUTO	1	42	120	592
#5	4 CUSTOMER GP4	2	SQ-N/E-11kv OHL	0	42	4	596
#6	1 CUSTOMER GP1	6	5+REFURB 33KV	0	42	4	600
#7	2 CUSTOMER GP2	2	SQ -N/E- 11kv OHL	0	42	2	603
#8	2 CUSTOMER GP2	3	SQ-Non essential	0	42	6	609
#9	1 CUSTOMER GP1	7	6+POWER QUALITY	0	42	9	618
#10	4 CUSTOMER GP4	4	STATUS QUO	1	44	20	638
#11	2 CUSTOMER GP2	5	SQ+PROTECTION	2	46	17	654
#12	4 CUSTOMER GP4	6	5+PODS	1	46	4	658
B	5 CUSTOMER GP5	5	SQ-Nonessential	5	51	25	684
#14	5 CUSTOMER GP5	9	8+CNL	8	60	14	698

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