OPEN*framework*

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OPEN*framework*™

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How We Got Here

This paper deals neither with "architectures" as such nor with the specific solutions which emanate therefrom. It deals with those activities which link "architectures" to solutions – solution methods. We have arrived at this focus progressively over some three years between 1991 and the present.

In 1990, ICL's top management empowered a team of its most senior engineers to create an architecture for ICL which would compete with IBM's SAA, DEC's NAS and the many other contemporary architectures from the world's leading suppliers. It was felt that ICL had to compete in this area. The result was OPEN*framework*, launched on 21 May, 1991.

The original form of OPEN*framework* followed the current fashion for supplier created, technical architectures. It sought to distribute ICL's then product range into technical categories such that the typical buyer would perceive structure and coherence. However, it was launched at the end of the era for this style of architecture. The diagrammatic form of OPEN*framework*, known as the 8 Elements, was intended to be memorable and was used as an icon. Marketeers dominated at that time, although the design engineers had sown the seeds of the way forward by adding Qualities and Perspectives to the Elements.

Although well-received as a response to SAA, NAS and DCM, there was some internal doubt as the lasting value of what had been achieved. Those of us at the heart of OPEN*framework*'s development realised that more substance was needed if OPEN*framework* was to have a life measured in years rather than months.

Internal interests tended to pull development in opposing directions. We quickly decided that there was really only one interest which should be served and that was the customers'. We concluded that OPEN*framework*'s future had to lie in helping customers to achieve their objectives. One immediate result of this decision was investment in the activity entitled verification.

Verification investigates What Works With What. Our approach majors on deriving systems integration information where customers most want to reduce risk – in multi-vendor configurations where no modification of the components is possible. There is now a network of over 15 OPEN*framework* Centres around the world.

Around the middle of 1991, the Queensland State Department in Australia known as DEVETIR became the first major user of OPEN*framework*. Over the following years, ICL staff worked with DEVETIR to implement a new approach to the exploitation of Information Technology in solving DEVETIR's business problems. Notable successes resulted and OPEN*framework* was considerably refined. This experienced proved the

general nature of OPEN*framework*.

By early 1993, OPEN*framework* had distanced itself from the icon of the 8 Element diagram. There was a re-launch in March 1993 which positioned OPEN*framework* as a method for systems integration. This put OPEN*framework* back into harmony with the state of the IT world. The problem which customers wanted to solve related to the exploitation of IT for business purposes. Moreover, customers seemed to understand better than suppliers that no one supplier holds all the answers and that green field sites for new developments have all but disappeared. The popular words were, and still are, "services" and "systems integration".

OPEN*framework*'s systems integration positioning, particularly as a method, was, and remains, generally correct. But this condemns it to being a distant concept for business managers. They want solutions and hence they want the people who can provide them with solutions. In particular, business managers want ways of changing, even completely transforming, their businesses. A systems integration method seemed an unlikely candidate, but the DEVETIR experience told us there was an opportunity to grasp.

We generalised our thinking and realised that ICL itself was a role model for business transformation. In a turbulent period, in a highly competitive market, with technologies which were in revolution, ICL had succeeded uniquely well in prospering. We realised that the management of change is something at which ICL excels. We have skills and experience which should be shared, and OPEN*framework* is one major strand of that shareable process.

We became able to describe a problem set for which OPEN*framework* is relevant. Business managers can relate to this set. We also recognised the importance of the human being in the equation. People are both part of the problem and agents for the solution; people make change whereas technology enables it. Building upon these ideas, we re-defined OPEN*framework* once again. This definition draws together all the strands to date and is the current one.

For the first time, we have also listed OPEN*framework*'s fundamentals. These embody the principles to which OPEN*framework*'s practitioners adhere. Experience shows that these can be powerful differentiators in the minds of business managers. For example, the belief that every business problem is unique, at least to some non-trivial level, is readily accepted by business managers. They equally readily accept that the optimal solution has to reflect this uniqueness by being unique itself. They then realise that a standard product alone cannot of itself constitute an ideal solution.

Because people now play a big part in OPEN*framework*, we created the concept of the Community. This is a collection of expert people who subscribe to the fundamentals and who formally undertake to work in the same way towards common goals. These members of the Community are licensed to ply for trade under the OPEN*framework* name. The benefits of working together in this way are significant for the members. For example, it makes re-use possible. In particular, benefits of scale accrue which are otherwise beyond the reach of any individual member. There are analogues of this in X/Open, SPARC and, beyond IT, the VISA credit card network.

One big benefit is the ability to bid jointly for assignments. This allows teams to be constructed which fit the right skills range, the right industry experience, the right overall size and the right geography. Post assignment information and references can also be shared and exploited in future bids.

At its most rudimentary, the method is all built upon three simple stages – plan, model and engineer. These are often spoken of as "What to do", "How to do it" and "Doing it". This simple approach has then been elaborated into a set of methods which cause change to take place in the target enterprise's people, processes and infrastructure.

The evolution of the basic ideas behind OPEN*framework* is now fast maturing. We now work to improve and augment.

What We Now Have

OPEN*framework*, the method, is now well supported by a wide variety of services, tools and even products. They range from business consultancy to practical systems integration in specific technologies. A good example is SystemWise™ – a CD-ROM based, integration information, subscription service.

This paper concentrates on the training programme which creates competent practitioners of the OPEN*framework* method.

The basic training programme is open to anyone who matches the entry criteria; it is not just for ICL staff. Those who complete the training may be eligible to gain accreditation as OPEN*framework* Practitioners. The training to date has been very positively received.

"General Practitioner" is the foundation training course. This may be followed by more specialised training in, say, Architecture. Alternatively, there is Awareness Training for those who want to understand the method so that they can participate in it as clients rather than lead it as practitioners. The General Practitioner training uses lectures, case studies and exercises over an 8 day, intensive period. There is always one of our ICL Fellows or Distinguished Engineers on hand to act as mentor to each class.

Students are carefully screened for their suitability. They must already be skilled IT practitioners and have consultancy experience. The style of training is akin to that of a master class; each student is expected to bring a live problem which will be resolved progressively during the training exercises.

Students learn about the place of information systems and their architectures within the broader framework of the overall enterprise and its aspirations. They base this upon acceptance that successful implementations depend on the right partnerships of people, using appropriate methods, under unified management objectives. This in turn builds into a rational structure of methods for change. In essence, this is the framework of OPEN*framework*.

The overall structure is then progressively decomposed from the top. The Plan cycle is studied first. Here the requirements are established, tested and agreed, emerging as balanced strategies in business and technical terms. The starting point is the enterprise's vision and students learn a systematic sub-method for extracting a robust, usable vision from those who control the business.

This vision is then used to create the strategies. In turn, these strategies lead to options of varying values to the business. Another sub-method then analyses benefit values for these options so that choices can be made in a rational, agreed manner. The conclusion of the Plan cycle is a well-defined problem which is correctly linked to the business, whose solution constraints are agreed and whose projected benefits are quantified.

The problem is then carried forward to the Model and then the Engineer cycles. The students learn further sub-methods for each cycle. The final outcome is a harmonised set of actions which change the processes and information, the organisation and its people, and the technology infrastructure.

Students also learn how to organise themselves and their clients in order to operate the sub-methods.

Today, over 140 students have reached Accredited Practitioner status. They represent 6 independent organisations and come from 16 countries. There are many others who have undertaken training which has not resulted in accreditation. Training courses are run throughout the year on a more or less continuous basis.

OPEN*framework* is a unique addition to the world of Information Technology and to the business world more generally. Over a relatively short period, a robust, widely-applicable method has emerged. It has proved itself in practice and is quickly gathering further adherents and practitioners. Above all, it appears to be what paying customers want – a reliable way of harnessing the potential of IT in changing business for the better. For many top business managers, OPEN*framework* makes IT for the first time into part of the desired solution rather than being perceived as part of the problem.

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Part 1 – How We Got Here

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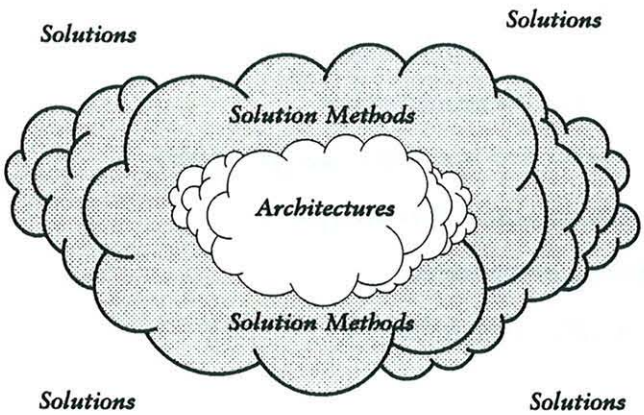
The Domain



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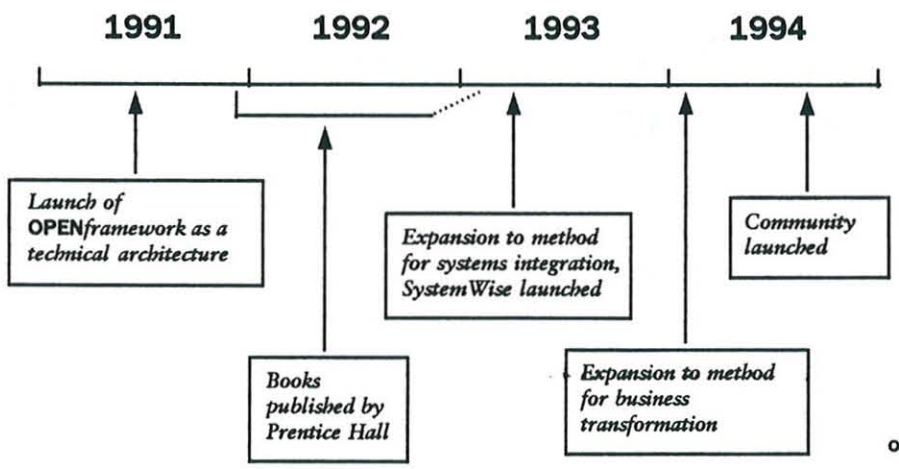
A Little History



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The World in 1990

Every supplier had an "architecture", except ICL

Suppliers competed on architecture

Some architectures explained product portfolios

Some architectures mandated interfaces

Users were bored or bemused

But ICL had to respond, with . . .

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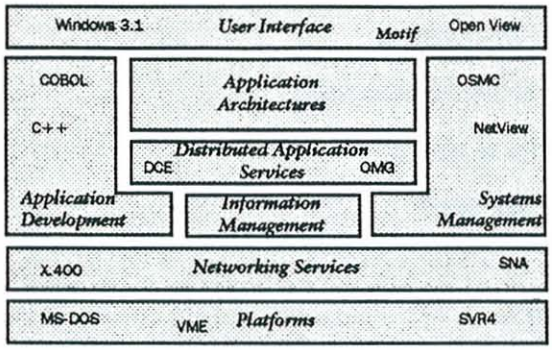
Opening Position – 21 May 1991



5 Qualities
4 Perspectives

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Axioms of Architecture

architecture *structure: the art of designing buildings: style of building*
Chambers Dictionary

An architecture is like a menu – the proof is in the eating not the reading

There is no perfect or ideal architecture; architecture must bend to fashion and materials

An architecture succeeds if and only if conforming implementations are distinct and desirable to those who pay

Architectures are sold but not bought

Written in mid-1991

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Internal Demands

From sales:	*Neutralise the competition*
From developers:	*Justify my project*
From management:	*Make it understandable*
From marketing:	*Give me a slogan*
From strategy:	*Get it adopted*
From customers:	*HELP!*

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Verification

What Works With What – W4

(Not what doesn't work with what!)

Repeatable construction recipes

Laboratory conditions

Multi-vendor scope

Components assumed immutable

What users want to reduce risk

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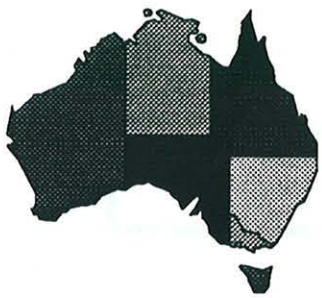
DEVETIR – A Case in Point



Queensland State Government

Department of Employment, Vocational Education, Training and Industrial Relations

Serving 3 million citizens

Recently created
New objectives

OPEN*framework*

DEVETIR – Their Solution

Thought about Open Systems – not enough
Discovered and chose **OPEN***framework*
Realised its wide scope – business relevance
Brought in outside expertise (from ICL ex-UK and locally)
Set up and trained internal consultancy teams
Gave authority to senior management
Accepted the long term nature of real success

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DEVETIR – Achievements

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For **citizens**

Single Incident Notification

Single Client Register

For **employees**

Change oriented culture

Up-graded technology

For **management**

Leadership in the State

Better service
Lower costs

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Systems Integration Focus

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OPEN*framework is . . .*

a simple, certain method . . .

for undertaking systems integration . . .

in an Open Systems world.

Definition in 1993

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The New Environment

Everyone is in "services"

Open Systems is conventional wisdom

Standards wars are ending

Customers want to make **business** *change*

All good business solutions exploit IT

No one supplier has all the answers

Past investment has to be used

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ICL and a Decade of Change

Issues	*Responses*	*Achievements*
Technology changes	*Market awareness*	*Continuous profit*
Open Systems	*Investing In People*	*Market share*
New competitors	*Crosby Quality*	*Awards*
Preferential buying	*Re-organisation (xN)*	*Satisfied customers*
De-regulation	*New products*	*Staff pride*
Europe 1992	*Empowerment*	*Chosen role model*
Rise of Japan	*Acquisition*	
	Collaborations	

Skills and experience to be shared

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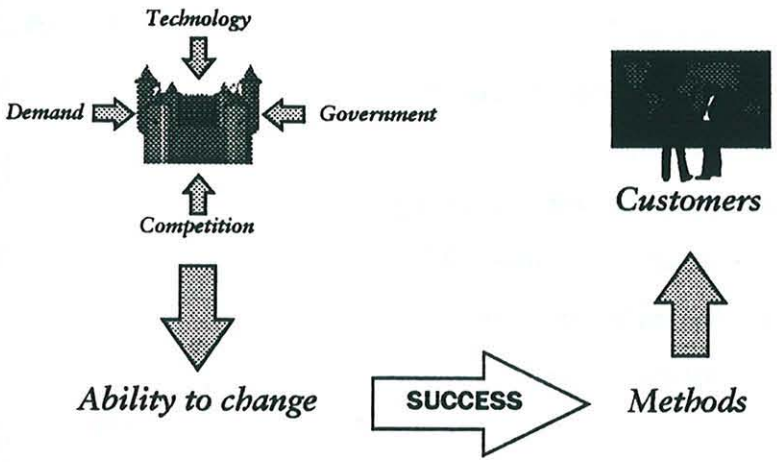
ICL Methods for Change



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Typical Problem

Compelling reasons to re-direct the enterprise
Current culture and old investment inertia
Service quality out of step with client expectation
Recent amalgamation and re-organisation
Competitive pressures apparently unmeetable
Structural rigidity, protectionist attitude
Staff not responding to stated vision

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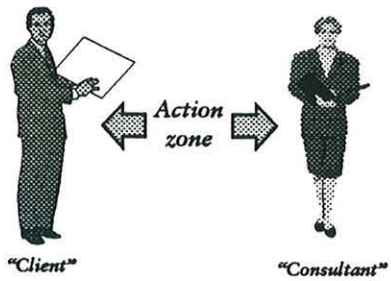
People make change



Win:Win performance improvement

Better solution for the "client"
Increased "client" confidence
Higher "consultant" efficiency
More demand for the "consultant"

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An additive NOT a product!

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OPEN*framework* is . . .

a **method** *based on . . .*
solid **principles** *which are used by . . .*
practitioners *to create . . .*
solutions *to business problems.*

It begins with the **business issues.**
It concludes with an **operational solution.**
It employs **structured methods.**
It **exploits IT** *within the solution.*
It includes a uniform **value system.**

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OPEN*framework* Fundamentals

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Principle of re-use

Business change targeted

Unique solutions for unique problems

Client participation

Completeness of scope

Systematic approach with defined steps

Vendor neutrality

Harmony of people, process and infrastructure

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The Community

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Accredited Practitioners and Solution Engineers

employed by

Organisations

who employ the OPEN*framework method*
who have the relevant skills
who use the appropriate tools and
who share information and experience

who enhance OPEN*framework*
who abide by common rules
who market tools and techniques and
who trade business opportunities

when plying for trade under the OPEN*framework* name

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Others Have Done It

Range of delivery skills
Geographic coverage
Market presence
Promotional leverage
Development capacity
Access to others' creativity

X/Open
SPARC
VISA

"In range and coverage even Andersen is medium." Gartner
"We're selling grey hair and we don't have enough." Coopers

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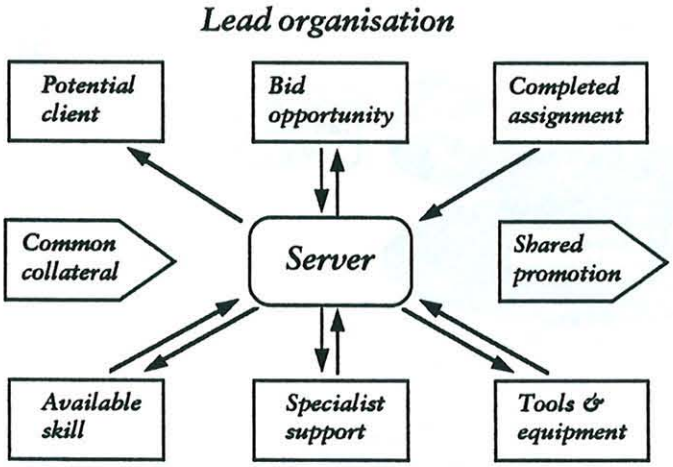
Winning Business Together



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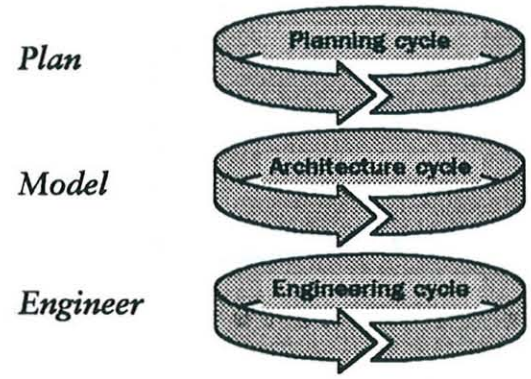
Methods for Change



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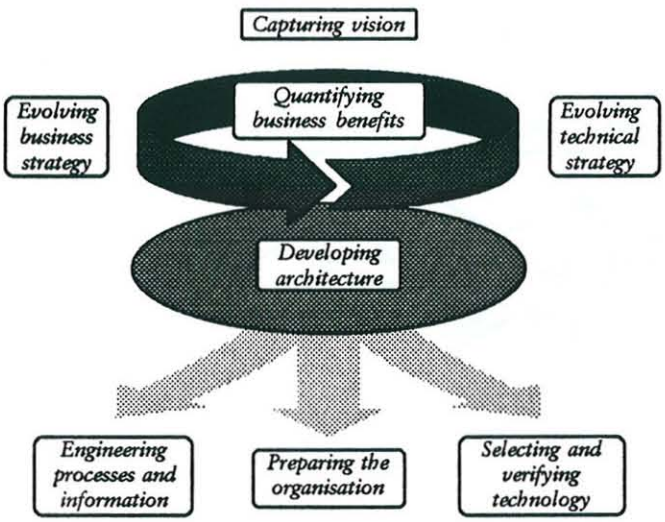

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Part 2 – What We Now Have

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Major Categories

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Consultancy
- *Architecture*

Community services
- *Membership administration*

Information services
- *SystemWise*

Integration services
- *Multi-media*
- *Systems management*

Process re-engineering
- *ProcessWise*

Technical literature
- *Systems Architecture Series*

Training
- *General Practitioner*

Verification services
- *Bespoke*

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OPEN*framework* Training Programme

. . . strengthening business systems skills by introducing a framework of methods which improves consistency, accuracy and re-use.

For those operating as consultants, external or internal

Bringing common language, common approach, proven methods and structure for re-use

Leading optionally to Accreditation

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An Endorsement

"If you don't understand the consulting business and the issues of transition and systems integration then **OPEN***framework will mean nothing to you or offer nothing new. If you do understand these things then you will value the systematic methods, structure and information and you will recognise* **OPEN***framework as a brilliant name for a brilliant piece of work."*

Walt Roseberry, Amdahl,1993

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Training Options

Mandatory:

General Practitioner	*8 days*
Optional:	
Business Practitioner	*2 days*
Architect Training	*2 days*
Systems Integrator Training	*2 days*

Or:

Awareness Training	*3 days*

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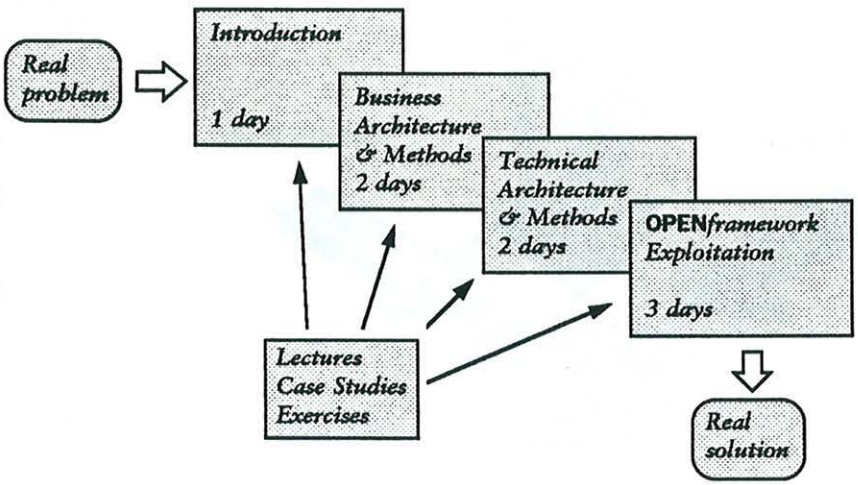
General Practitioner



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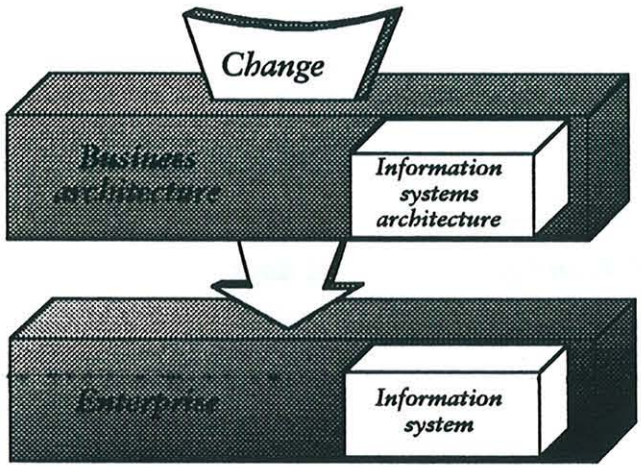
The OPEN*framework* model



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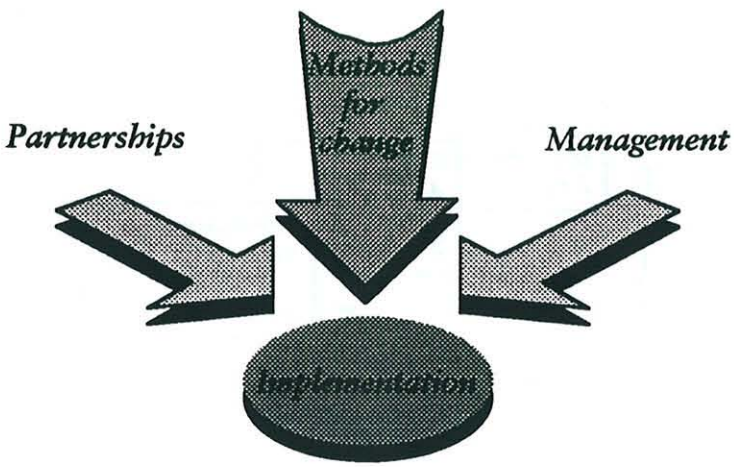
Applying OPEN*framework*



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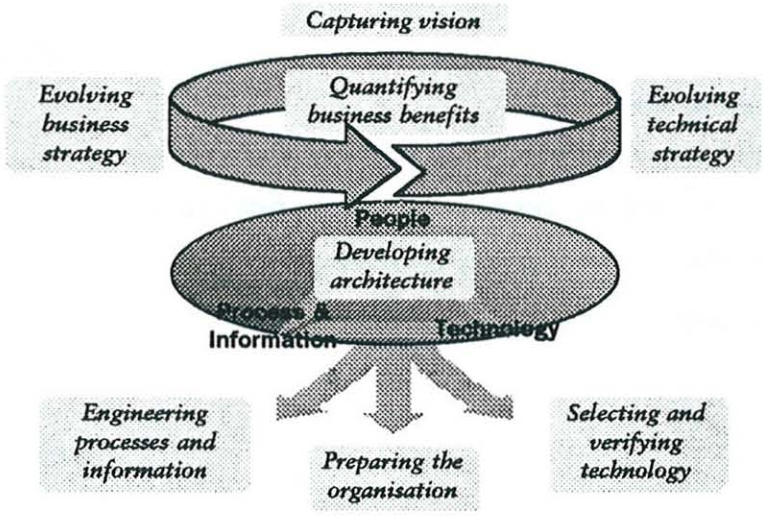
Methods for change



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Methods – The Planning Cycle

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What is a Vision?

A description of something

(an organisation, a business, an activity, a technology, a corporate culture)

which the enterprise aspires to create in the future and

whose underlying conditions for its realisation

can be communicated throughout the enterprise.

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The effect of the vision

A vision belongs to a process of direction setting

The vision is the focus of attention

Choices are seen in terms of it

Structures and pressures related to it

Efforts stem from it

It involves commitment and total immersion

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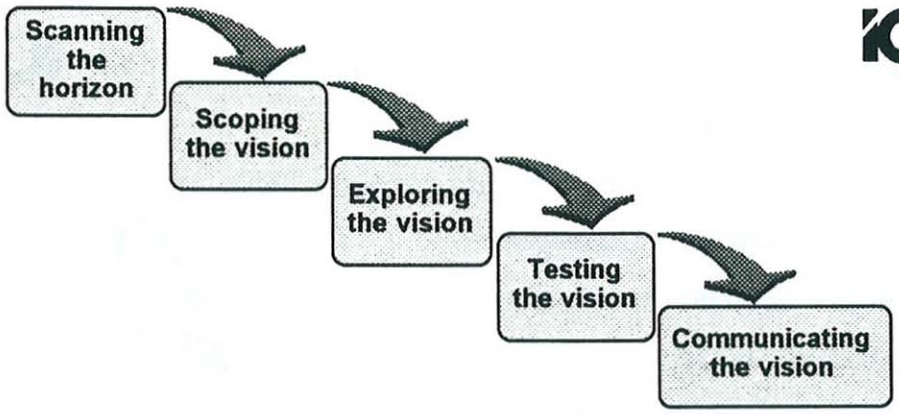
Capturing Vision



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Testing the vision

Does the vision provide a challenge to the enterprise?

Does it map out a sense of direction?

What signs indicate that the vision can become reality?

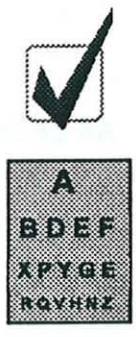
Could it be simpler, could it be clearer?

Can it be translated into goals and strategies?

Does it mirror goals and aspirations of the players?

Does it make complex situations into simple choices?

Generate and test scenarios to clarify the vision



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Communicating the vision

Simple statement of the vision - if possible

Back up by presentation

Provide fuller description and discussion: a book

Get commitment by management

Frequently articulated by management

Communicate to each perspective

Check and report progress against the vision

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Summary (1)

Concept of a future for the enterprise to aspire to

A feeling for time but not a deadline

An understanding of the conditions needed to realise the vision

Arena or domain for the competitive behaviour, collaboration or growth

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Summary (2)

Identifies strengths to be used, enhanced or relaxed

Capabilities available, needed, redundant

Visions can be killed before birth

Visions can fade before completion

Vision is an essential part of direction setting for enterprise survival – a prelude to strategy

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Evolving Business Strategy

This part of the **OPEN***framework method takes input from:*

- *The enterprise VISION statement*
- *Knowledge of how the enterprise currently operates*
- *The various technology opportunities that have been identified*

and generates:

- *High level business requirements statements*
- *Mission, objectives and critical success factors for the business strategy as a whole*

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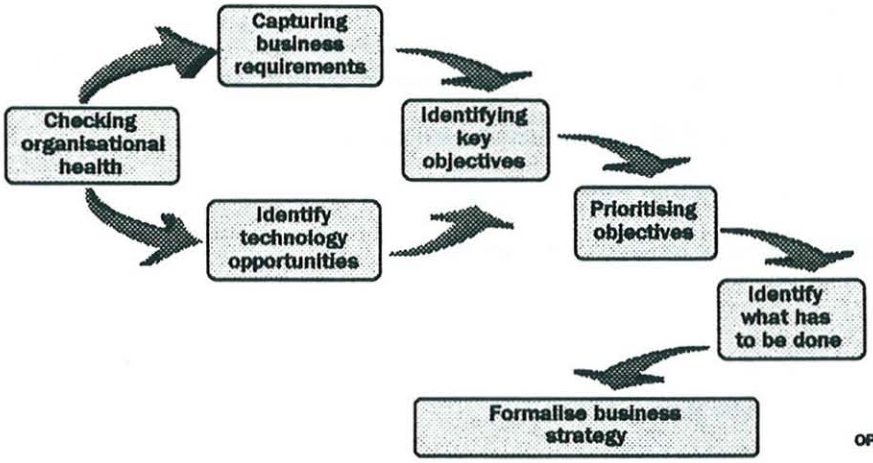
Overview



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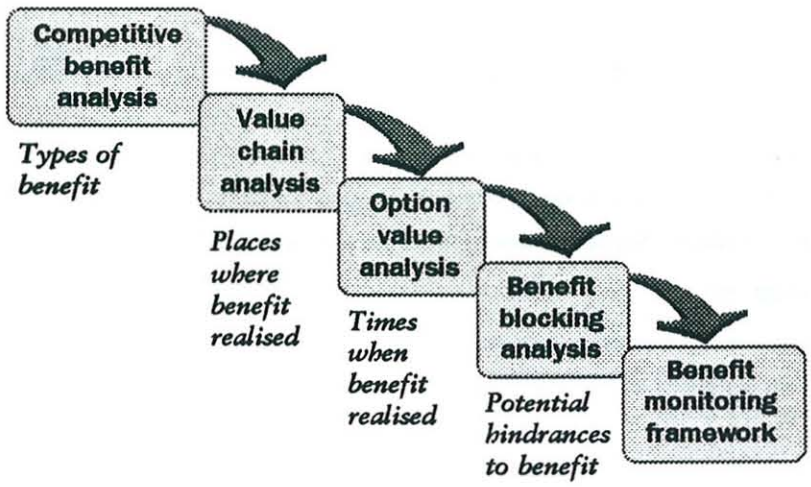
Quantifying Business Benefits



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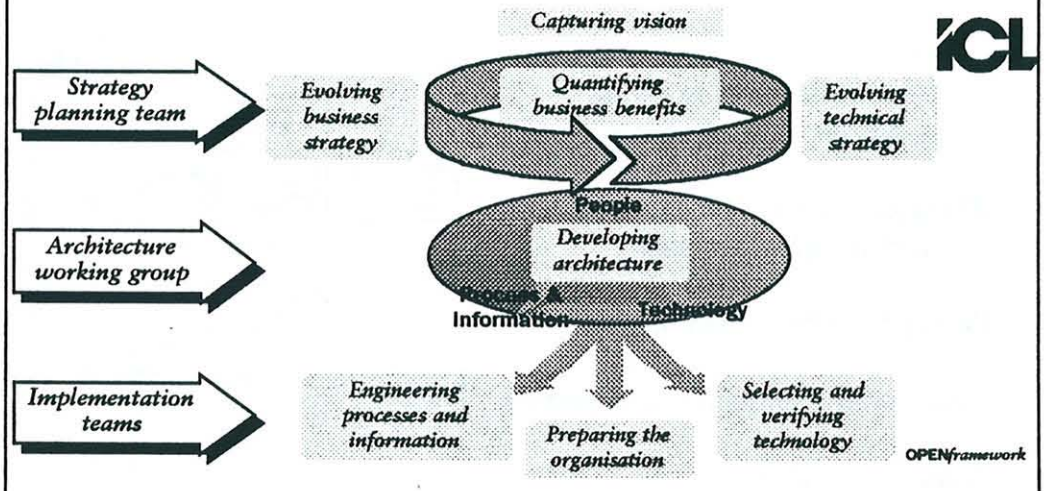
Who does what?



Situation Report

140+ Accredited Practitioners trained

Trained staff in 6 organisations

In 16 countries across the world

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Summary

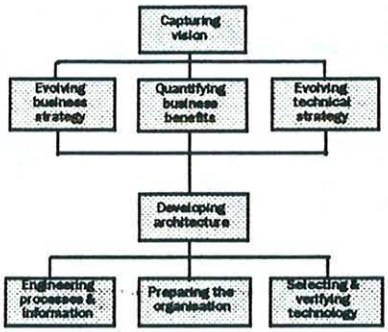
OPEN*framework is a method used by practitioners to create solutions to business problems*

It takes account of business, social and technical systems

It employs structured methods

It includes a uniform value system

It manages change



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DISCUSSION

Rapporteur: Jim Smith

Lecture One

Professor Rechtin offered compliments in general on the methodology, but wished to clarify the relationship between practitioner and customer. At one point, the talk appeared to suggest that the practitioner creates the architecture, but later states that both client and practitioner do so together. Mr Emery responded by suggesting that in a medical consultation, the doctor is the practitioner and the patient the client but that they each play a part in the consultation process. Professor Rechtin added that, particularly in view of possibility of liability problems, the patient must have a veto.

Dr Sventek wished to know where in the methodology is the benefit for ICL, in view of the open community and the methodology being technology neutral. Furthermore he asked whether the lack of protection for secrets would pose any threat for ICL. Mr Emery replied that while it is true that it is not possible totally to protect secrets such as the workbench, this is just like any software product. With regard to the question about the community, Mr Emery said that ICL considered becoming founder member of X-Open in order to give customers confidence and choice; that like other members, ICL benefits from being a member of such an approved group. Dr Sventek asked why an organisation such as Andersen doesn't join in the OPEN*framework* community and then take business from ICL. Mr Emery replied that such an approach would be likely to lead to greater cost than gain, since ICL may publicize community membership.

Dr Aho commented that OPEN*framework* was originally created to aid in construction of distributed systems, but now aims to tackle more general business problems. Mr Emery concurred, explaining that ICL started with network solutions, but then appreciated the need to consider the effects of people. By analogy, he suggested that there is no single method for building great bridges. The way to build a good bridge is to employ a good bridge designer. The approach for ICL then is to train and accredit engineers.

Professor Randell asked what classes of computer based problem would OPEN*framework* be irrelevant to. For example, a company might wish to replace Word for Windows, or alternatively a company might have just obtained the contract for constructing the safety critical software for Sizewell B. Mr Emery responded that in both cases, it is necessary to express requirements precisely so OPEN*framework* would have relevance to both problems, though the better example would probably be that of the Sizewell contract.

Another person commented that the expressed emphasis is on the solution of business problems, but there is also a need for a business to create new opportunities. He suggested this latter problem might require a big difference in approach, and noted that it does not seem to be tackled at all yet. Mr Emery suggested that it is possible to examine an organisation and look at what its problems are, just as in the solution of business problems. The questioner posed the objection that an organisation may not be aware of what its problems are. For example, British Airways spent 70 out of 75 years unaware of the potential benefits of knowing who its customers are. Mr Emery suggested that universal requirements for a business do exist, and that it is typically through the intervention of some external agent that a change becomes possible. In effect a solution looking for a problem is introduced. One example is an owner of a bus company who decided to invest in a smart card company, with a view to being able to track usage of his buses.

The same questioner also commented that the slide identifying the problem set for typical customers gives the impression that customers may suffer from only a subset of

the problems listed. But suggested that in reality surely anybody who doesn't have all the listed attributes is lying. Mr Emery agreed that this is quite likely.

The same questioner also what is the smallest and largest problem which is suited to the application of OPEN*framework*. In response, Mr Emery identified two examples. The first is a customer who wishes to connect Psion handheld machines to a shared repository, and wishes to get the requirements right. In the second case by contrast, OPEN*framework* is being used to study the use of the information superhighways in Europe.

Lecture Two

During the presentation of the Training Schedule slide, Professor Rechtin asked whether the training process is contiguous or spread out over a period. Mr Emery replied that this varies, but that typically the General Practitioner course of 8 days is spread over two weeks and followed immediately by one of the options, other options being deferred till later if taken.

During the presentation of the Methods for Change slide, Professor Rechtin asked what do the "perspectives" shown in the slide refer to. Mr Emery responded that the "perspectives" are the major stakeholders, e.g. management etc.

During the presentation of Evolving Business Strategies slide, Professor Rechtin asked why emphasis is given to "technology opportunities" as opposed to "opportunities" in general? Mr Emery acknowledged this as a possible simplification, but pointed out that ICL is a technology led organisation.

Professor Rechtin asked whether it is it necessary to consider the response of competitors to desirable changes identified during consultation with a customer. Mr Emery replied that, at the point where consideration is turned to how to monitor success of the changes, one question which arises is that of the response of competition.

Professor Randell asked to what extent is success of the method dependent on availability of tool support. Mr Emery suggested that the most important component in a system is the people involved. Second to this are the tools which are used. Referring to a medical consultation for example, he suggested that the doctor (the "tool deployer") is crucial and only afterwards does consideration turn to the operating theatre etc. Professor Randell asked whether ICL considered themselves to be at the start of tool development or whether the process is well advanced. Mr Emery anticipated evolution of tools, adding that ICL does not wish to become locked into a named set of tools. He further added that while some in-house development has been done, ICL does not want to be diverted wholly into the process of tool development. Professor Randell concluded by explaining that the observation driving the question is that in the area of software development by contrast, the presence of tool support is crucial. It is often desirable to promote the use of new compilers etc, so as to encourage adoption of new methodologies.

Dr Aho asked how long would it take for a 10000 person organisation to learn the methodology. Mr Emery was not aware of 10000 person consultancy, but suggested that the approach might be to teach a core group which can then pass on the methodology. He added that this initial training would be very quick.

Professor Rechtin asked whether ICL supports tool development. Mr Emery replied yes, through the community. Professor Rechtin asked what sort of cost is involved in a consultation. Mr Emery said that in one example it cost £100k to reach the end of the modelling phase, entailing a couple of month's work.

Professor Randell asked to what extent does the word "business" tie the methodology into a particular niche, and, for instance, whether the methodology could be applied to a university reorganisation. Mr Emery responded with a parallel, saying when a representative of the Social Services reports that his organisation has never availed itself of the methodology, the retort is "If you are a footballer who has just been injured, would you prefer to be treated by a physiotherapist with 20 years experience who has just turned to sports injuries, or a footballer of 20 years experience who has just become a physiotherapist?" The suggested answer is the former.

Dr Aho asked what benefits does the approach bring to a research organisation, at university or in industry, and following on, how can the benefits of research to the wider community be quantified. He explained that this latter question is assumed to arise in any attempt to apply the methodology to a research environment. One delegate noted that the process of applying the methodology to such a research organisation must hopefully lead to a better understanding of the contribution made by research. Mr Emery referred to a consultation with a police force. During application of the methodology, a long standing and fundamental question resurfaced regarding the identity of the client of the organisation, be they the aggrieved, central or local government, or even the accused. Application of this methodology forced careful assessment of this question which is itself a benefit. Dr Aho added that universities do seek from industry some indication of whether or not the graduates they produce are satisfactory.