



Guide to Building and Running Learning Networks

1. Why use a network for learning?

There are two main reasons for thinking about using a network to help with learning:

- We recognise a need to learn – to upgrade knowledge and competency in some aspect of our business and
- We recognise that learning – acquiring this competency – is often difficult when working alone

So before we go any further, let's briefly explore each of these.

1.1 Learning matters...

To state the obvious, firms need to learn to survive. As de Geus points out, (based on studies carried out by Shell) the average corporate survival rate for large companies is only about half as long as that of a human being (de Geus 1996). To put this into perspective almost 40% of the firms which made up the Fortune Top 500 ten years ago no longer exist, whilst of the top 12 companies which made up the Dow Jones index in 1900 only one – General Electric – survives today. Even apparently robust giants like IBM, GM or Kodak can suddenly display worrying signs of mortality, whilst for small firms the picture is often considerably worse since they lack the protection of a large resource base.

Behind these figures lies a challenge. Not all firms fail and some have undoubtedly thrived during this period; the key feature which they share is an ability to adapt and learn to deal with their rapidly changing and uncertain environments. Research suggests that there are two important components involved in such learning; the first involves the accumulation and development of a core knowledge base - the 'core competence' - which differentiates the firm from others and offers the potential for competitive advantage. Acquiring this is not simply a matter of purchasing or trading knowledge assets but the systematic and purposive learning and construction of a knowledge base.

The second is the long-term development of a capability for learning and continuous improvement across the whole organisation. Recognition of this need has led to growing emphasis on the concept of 'learning organisations' and on the mechanisms through which this capability can be developed. One aspect is the possibility of gaining traction and support for the learning process through working with others in what we term 'learning networks'.

1.1.2 Benefits – is it worth it?

If this activity is valuable it should be possible to demonstrate some positive changes in the overall performance of the systems in question – for example, cost reductions, quality improvements, etc. The following two examples of such networks suggest that the answer to the question 'is it worth it?' is very much a positive one.

In the first case the KZN Benchmarking Club (a network of firms in the auto components manufacturing sector in South Africa) has a time series of benchmark data on performance of firms in the club and of those in the sector generally. From the latest findings in this benchmarking process it is clear that over a 12 month period the



members of the club were significantly better performers than the other firms., arguing for at least some learning effect arising from membership of the learning network.

In the second example we have data from the six supply chain learning networks studied in depth. Most of the cases we reviewed indicated improvements in these categories for the main customer and its suppliers, confirming that supply chain learning programmes can be win-win programmes. Table 1 lists several of the benefits firms realised from the programmes.

Table 1: Sample Benefits Realised from SCL in the Six Value Chains

	Benefits to SCC	Benefits to first-tier	Benefits to second
Semi-equip	<ul style="list-style-type: none"> ❑ Sales quadrupled over 10 years ❑ Incoming deliveries in kanbans: increased from 30% to 80% in 3 years 	<ul style="list-style-type: none"> ❑ On time delivery: 87% (1997) - 100% (1998) ❑ Scrap (internal and external): 1.5% (1995) - 0.15% (1999) ❑ Stockturns: 20 (1995)- 40 (1999) ❑ Set up time as % production time: >15% (1995) - 10% (1999) 	<ul style="list-style-type: none"> ❑ Sales: grown 29% since 1995 ❑ Stockturns: 8.5 (1996)- 10.7 (1998) ❑ Lead time: weekly (1996) - next day delivery (1999)
Oil+Gas	<ul style="list-style-type: none"> ❑ The adoption of best practices through the supply chain may have generated saving of £1 billion 	<ul style="list-style-type: none"> ❑ First tier supplier benefited as it saved 5% of total costs. 	<ul style="list-style-type: none"> ❑ 1st tier supplier helped the 2nd tier supplier cut down lead-time from 14 weeks to only 16 days.
Computer	<ul style="list-style-type: none"> ❑ Cost reductions. ❑ Reduction of the number of first tier suppliers from around 1,000 to nearly 200. ❑ Reduced the time to market and increased profit margins and revenues. 		<ul style="list-style-type: none"> ❑ 2nd tier supplier now concentrates on technological capabilities which has increased the profit margins of the company.
Chemical A	<ul style="list-style-type: none"> ❑ The alliance has achieved total savings of 6%, which was jointly shared by the alliance and Chemical A. ❑ Productivity has grown by 4 - 5%. 	<ul style="list-style-type: none"> ❑ Suppliers now have access to better equipment while all drivers are trained in defensive driving 	<ul style="list-style-type: none"> ❑ N/A



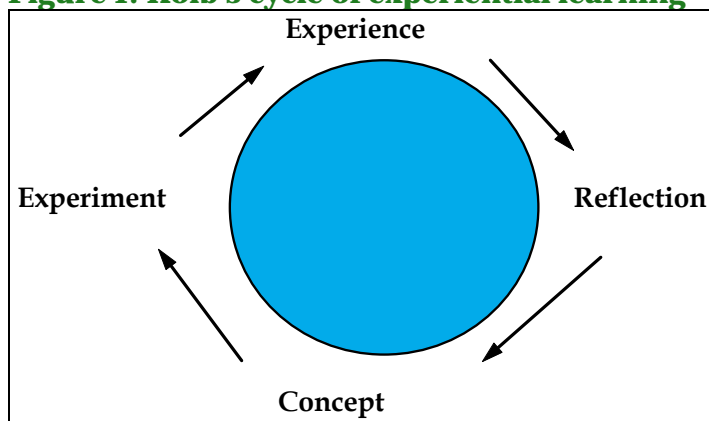
Chemical B	<ul style="list-style-type: none"> Quality and delivery time of materials has improved leading to cost savings throughout the supply chain. 	<ul style="list-style-type: none"> Customers reduced inventory and in other targeted areas. 	<ul style="list-style-type: none">
Aerospace	<ul style="list-style-type: none"> Quality and delivery time of materials has improved leading to cost savings throughout the supply chain and relationships between participating companies has been enhanced. 	<ul style="list-style-type: none"> Improved processes and reduced interface issues leading to delivery, quality and responsiveness improvements. 	<ul style="list-style-type: none"> Use of SPC techniques to improve quality

1.2 How organisations learn

There is much discussion of learning in organisations, and the following represents a brief attempt to summarise some convergent themes:

- there is some agreement that learning can be viewed as a cyclical process (see figure 1), involving a combination of experience, reflection, concept formation and experimentation (Kolb and Fry 1975)

Figure 1: Kolb's cycle of experiential learning



- it follows from this model that learning only takes place when the cycle is completed - thus much effort an activity in one or more quadrants may not necessarily lead to learning
- we also need to recognise that learning is not automatic - there must be motivation to enter the cycle, and if there is insufficient arousal learning may not take place
- learning can be supported by structures, procedures, etc. to facilitate the operation of the learning cycle - for example, through challenging reflection, facilitated sharing of experiences or planned experimentation
- learning involves the accumulation and connection of data into information and knowledge



- learning involves both tacit and formal components, with the task being to capture and codify, to make explicit (Polanyi 1967; Nonaka 1991)
- learning may take place in 'adaptive' mode - learning to do what we do a little better - or it may involve reframing and radical change (what some writers term a 'paradigm shift') in which the perception of the problems to be solved and the potential set of solutions change (Kuhn 1962; Argyris and Schon 1970; Bessant 1998)
- learning to learn - learning to design and operate learning systems – is an important attribute of the development of learning organisations (Argyris and Schon 1970)

Most of the original work on learning was carried out at the level of the individual but in recent years there has been growing interest in the concept of 'learning organisations'. At one level it can be argued that it is only the individuals within an organisation who can learn but at another there is some evidence for viewing organisations as capable of learning behaviour which extends beyond that of individuals and which emulates key activities like experimentation, association and remembering. (Hedberg 1981) In particular we can make the following observations about learning organisations:

- First, whilst it is individuals who carry out learning processes it is the organisation which provides the context in which this takes place - and some environments are more conducive than others to enabling learning
- Second, under certain organisational conditions individuals interact and share knowledge. Over time this can become part of the organisational culture - the pattern of shared concepts, values, beliefs, etc. (Schein 1992); where this culture is sufficiently strong it can survive the departure of individuals and the entry of new individuals who become socialized into it. Thus we can speak of an organisation learning and having some form of memory where its learning accumulates and which guides its subsequent behaviour
- Although much learning takes place in the tacit domain, attempts can also be made to capture and formalize knowledge learned in this process. For example, formal programmes of directed experiment and reflection (R&D) can lead to increased codified and tacit knowledge - the technological competence of the firm. Equally programmes which attempt to capture tacit knowledge in exemplified procedures also contribute to making tacit knowledge explicit - e.g. in the articulation of core processes which underpins the acquisition of ISO 9000 certification
- several mechanisms appear to help with this process of sharing and making knowledge explicit; these include exchange of perspectives, shared experimentation, display, measurements, etc. (Garvin 1993). At their heart they represent ways of supporting and developing a shared learning cycle

1.3 Problems with learning

Although there is growing interest in the topic and strong arguments for the need to acquire and upgrade knowledge on a continuing basis – continuous learning – the fact remains that learning is a complex and problematic activity. It does not take place automatically – indeed in many cases there are elaborate defence mechanisms which militate against the organisation even entering the learning cycle. These range from ignorance and isolation from stimuli, through to various forms of denial or of underestimating the strength of the incoming stimulus. (Tidd, Bessant et al. 1997).



In other cases firms may recognise the need for learning but become locked in an incomplete cycle of experiment and experience, with little or no time or space given to reflection or to the entry of new concepts. For others the difficulty lies in organising and mobilising learning skills, whilst in other cases the difficulty lies in making use of the rich resource of tacit knowledge - things people know about but are unable to describe or articulate (Polanyi 1967)].

Table 2 summarises some of the key blocks to learning:

Table 2: Key blocks to learning

<i>Learning block</i>	<i>Underlying problem</i>
Lack of entry to the learning cycle	Perceived stimulus for change is too weak Firms is isolated or insulated from stimulus Stimulus is misinterpreted or underrated Denial
Incomplete learning cycle	Motivation to learn is present but process of learning is flawed. Emphasis given to some aspects – e.g. experimentation – but not to all stages and to sequence.
Weak links in the cycle	Reflection process is unstructured or unchallenging Lack of access to or awareness of relevant new concepts Risk avoidance leads to lack of experimentation Lack of sharing or exchange of relevant experiences – parochial search for new ideas 'Not invented here' effect
Lack of learning skills or structure	Lack of supporting and enabling structures and procedures
Knowledge remains in tacit form	Lack of mechanisms for capturing and codifying learning
Repeated learning	Lack of mechanisms for capturing and codifying learning leads to repetition of same learning content
Learning is infrequent, sporadic and not sustained	Mechanisms for enabling learning are not embedded or absent



Dealing with these and other problems is not easy but literature suggests that the creation and development of relevant learning support structures and processes is one of the most important management challenges emerging in the new competitive environment. One aspect of these support structures concerns the use of principles of shared and co-operative learning to help maintain momentum.

1.4 Intra and inter-organisational learning - can networks help?

Although much of the discussion on learning organisations is concerned with structures and processes within particular firms there is an emerging strand which deals with the theme of inter-firm learning. For example, in work on supply chain development there is a growing recognition that the next step after moving from confrontational to co-operative relationships within supply chains is to engage in a process of shared development and learning. (Hines 1994; Kaplinsky, Bessant et al. 1999).

This aspect of learning has something in common with the principles of learning within groups instead of at the individual level. In particular the active participation of other sin the process of challenge and support is recognised as a powerful enabling resource and was developed into a widely used approach termed 'action learning'. (McGill and Warner Weil 1989) This concept stresses the value of experiential learning and the benefits which can come from gaining different forms of support from others in moving around the learning cycle. Part of the vision of Revans, one of the pioneers of the concept, involved the idea of 'comrades in adversity', working together to tackle complex and open-ended problems (Revans 1983; Pedler, Boydell et al. 1991).

The potential benefits of shared learning include the following:

- in shared learning there is the potential for challenge and structured critical reflection from different perspectives
- different perspectives can bring in new concepts (or old concepts which are new to the learner)
- shared experimentation can reduce perceived and actual costs risks in trying new things
- shared experiences can provide support and open new lines of inquiry or exploration
- shared learning helps explicate the systems principles, seeing the patterns - separating 'the wood from the trees'
- shared learning provides an environment for surfacing assumptions and exploring mental models outside of the normal experience of individual organisations - helps prevent 'not invented here' and other effects

Arguably this approach has much to offer inter-organisational learning and the experience of regional clusters of small firms provides one important piece of evidence in support of this. The ability of textile or ceramic producers to share knowledge about product and process technology and to extend the capabilities of the sector as a whole is recognised as central to their abilities to achieve export competitiveness. In the case of Italian furniture, for example, a dominant position in world trade has been achieved and sustained over fifteen years – yet the average firm size is less than 20 employees. (Piore and Sabel 1982; Best 1990).



If we accept that there is potential in the concept of learning in networks or clusters, two questions are raised. The first is the extent to which we can consciously build in this concept in the design and operation of 'managed networks' – such as supply chains or technological collaborations. The second is the extent to which it can be used as an alternative or complementary model for enabling learning around a specific theme – for example, technology transfer, upgrading and competence development amongst small firms.

2. What is a learning network?

Networks of any kind offer many opportunities for learning to take place - by sharing ideas, trying out experiments, etc. But where such learning takes place it is essentially as a 'by-product of some other activity or purpose within the network. However it might be possible to use the network concept as a vehicle whose *primary* purpose is to enable learning. This concept of a 'learning network' can be expressed as:

'a network formally set up for the primary purpose of increasing knowledge'

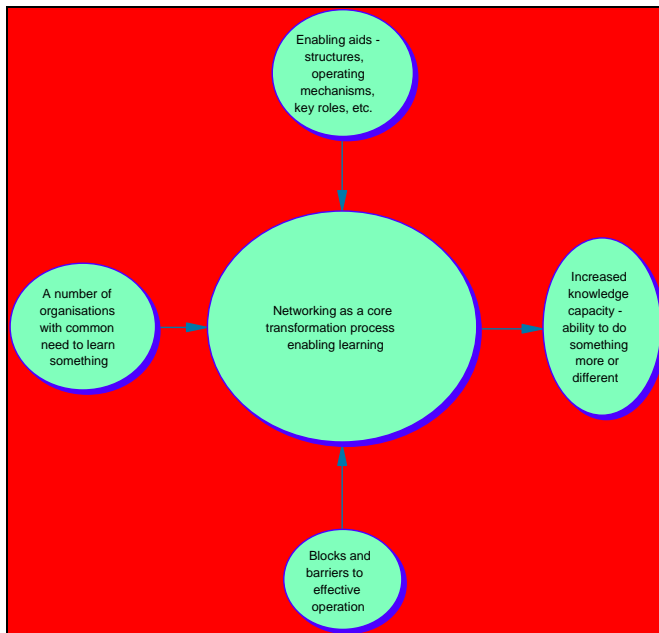
This definition implies a number of features:

- they are formally established and defined
- they have a primary learning target – some specific learning/knowledge which the network is going to enable
- they have a structure for operation, with boundaries defining participation
- processes which can be mapped on to the learning cycle
- measurement of learning outcomes which feeds back to operation of the network and which eventually decides whether or not to continue with the formal arrangement

These features may be weakly or strongly developed in different kinds of learning network, but they represent structure and process aspects which could be explored further. We can express this diagrammatically as in figure 2.



Figure 2: Key elements in learning networks



2.1 Stages in the life cycle of learning networks

It is important to recognise that there is a 'life cycle' associated with learning networks, and that different factors are important in setting up, operating and maintaining them in the long-term.

From the research it appears that three distinct phases can be identified – set-up, running (i.e. the operation of the learning programme) and long-term sustaining.

The first *set-up* phase involves the establishment of a set of procedures to promote networked learning. However, once these procedures have been established - the '*running phase*' - the challenge then is to ensure that they are translated into a set of routines and norms which govern the behaviour between and within firms, and this forms the basis of the second phase.

The problem is that once these routines and norms have been established - often involving changing behaviour by individuals and firms - there is a natural tendency for behaviour to return to traditional patterns. (The analogy can be drawn to running up a down escalator). Therefore, a third and important stage involves the ability to *sustain* these activities, and not to allow them to degrade and lose impetus. (to further the analogy, this would be changing the direction of the escalator to up).

We will look at these three aspects in the course of this guide, but first it will be useful to consider the different ways in which learning networks can be set up.

2.2 Types of learning network

Examples of the kind of learning network described above might include:

- a formal club whose members have formed together to try and understand and share experiences about new production concepts - e.g. a 'best practice' club or forum



- a shared pre-competitive R&D project - 'co-laboratories'
- a supplier association where the aim is to upgrade levels of capability
- a professional institution where the aim is to upgrade and update member's knowledge
- a trade or sectoral research organisation where the aim is to upgrade sectoral knowledge

Such groupings represent the coming together of groups or individuals for particular learning purposes; table 3 indicates an outline typology for networks of this kind.

Table 3: Outline typology of learning networks

(based on (Holti and Whittle 1998; Bessant and Francis 1999))

Type	Learning target	Examples
Professional	Increased 'professional knowledge and skill = better practice	Professional institution
Sector-based - association of firms with common interests in the development of a sector	Improved competence in some aspect of competitive performance - e.g. technical knowledge	Trade association Sector-based research organisation
Topic-based	Improved awareness/knowledge of a particular field - e.g. a new technology or technique in which many firms have an interest	'Best practice' clubs
Region-based	Improved knowledge around themes of regional interest - for example, SMEs learning together about how to export, diffuse technology, etc.	'Clusters' and local learning co-operatives
Supplier or value-stream based	Learning to achieve standards of 'best practice' in quality, delivery, cost reduction, etc.	Particular firms supplying to a major customer or members of a shared value stream
Government-promoted networks	National or regional initiatives to provide upgrades in capacity - knowledge about technology, exporting, marketing, etc.	Regional development agencies, extension services, etc.



<p>Task support networks</p>	<p>Similar to professional networks, aimed at sharing and developing knowledge about how to do a particular - especially novel – task</p>	<p>Practitioner networks</p>
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It is important to note that many of these - for example, professional institutions - represent learning networks but also carry out other activities such as representation and lobbying on behalf of their members. In many cases the learning aspects become subordinated or even dormant; we can compare between different examples of the same kind of learning network. Thus some Trade Associations are perceived as more active facilitators of learning for their members than others.

Several networks are also hybrids - for example, it is possible to find examples of networks which are both government promoted and also topic based. Some are formally promoted, with a clear focus and organising 'hub', whilst others are largely co-operative and based on mainly informal mechanisms. For example, many emergent practitioner networks are essentially 'self-help' networks of people in a new role for which the operating rules are still unclear; it makes sense for them to pool experiences and develop the emergent role together.

Although there is wide variety, the primary feature of such learning networks is that they all use the principle of shared learning to enable capacity development. So it will be worth looking at how learning networks can contribute to this generic process.

2.3 Learning networks in operation

Our interest in learning networks forms part of a wider project looking at inter-organisational networking (ION). Within this programme we are looking at a generic framework for reviewing the operation of effective networks, which is based on the model in figure 2, presented earlier. Essentially this views a network as a form of organisation in which a number of activities and processes help it fulfil its purpose. This guide tries to capture the main findings from that work in practical fashion

3. What kind of network?

As the previous section showed, learning networks can be established in a variety of forms and our research has explored (through case studies and survey) the range of these. From this we can identify several distinct types, including;

- Region-based
- Topic-based
- Sector-based
- Supply chain-based
- Professional-based



We should stress from the outset that these are not always 'pure' types but can take hybrid forms – for example, sectoral networks can be set up around specific topics, or supply networks can be established within particular geographical regions. Equally there is overlap between such learning networks and networks set up for other primary purposes – for example, learning networks which try to make use of the organisation and established pattern of operation within a supply chain or network.

It is possible to map these – and potentially other types which might emerge – on two dimensions, as shown in figure 3. These dimensions are:

- Degree of similarity/dissimilarity – how alike are the firms or individuals joining the network (for example, from the same sector or in the same region vs. a heterogeneous group with little in common)
- Degree of focus/ broad targets for learning – how specific (in time, topic, content, etc.) are the learning objectives?

3.2 Type 1: Broad learning focus/ dissimilar participants

Characteristics

Networks of this type form when participants from a wide range of backgrounds and with dissimilar characteristics come together to try and upgrade their individual and shared knowledge base. It could be, for example, that they are firms in a region which has undergone industrial restructuring – e.g. with the closure of a major employer like a shipyard or steelworks – and there is a shared recognition of the need to learn new approaches. Equally they could be firms of different size within a sector where there is a shared recognition of the need to improve performance across a range of measures such as delivery or productivity. This is an important network type for those concerned with collective industrial development (for example, Regional Development Agencies) and with 'cluster' policies.

Examples

Examples of such networks would include those which are being developed by regional development agencies around particular areas, or 'broadcasting' networks category where the remit is to diffuse knowledge about good practice across a broad range of topics and to a widely different audience.

3.3 Type 2: Tight learning focus/ dissimilar participants

Characteristics

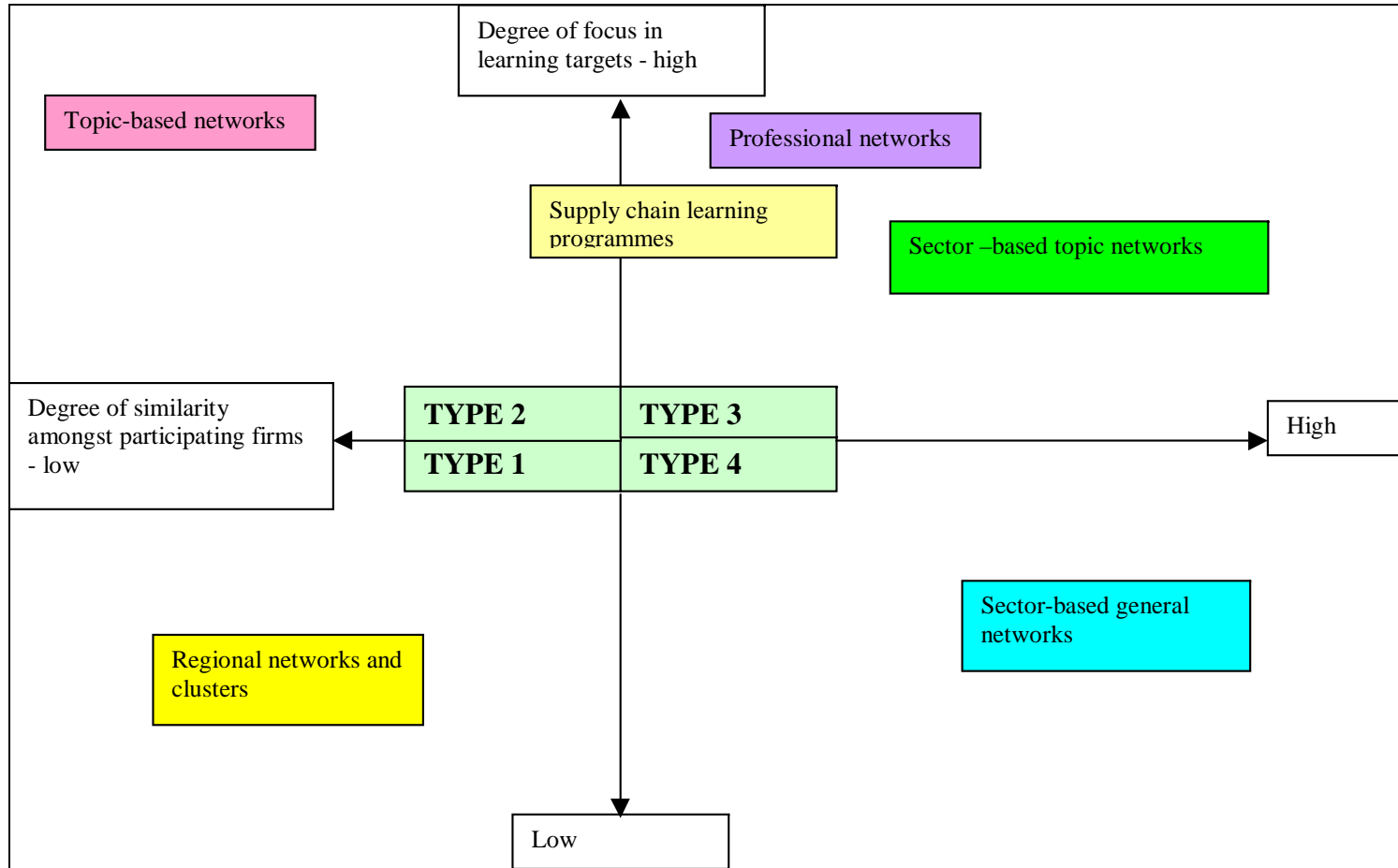
Networks of this type form for similar reasons to type 1. Some perception of the need for change triggers action – for example, the emergence of a threat to the region or sector, or the recognition of the need to upgrade some aspect of competence. The main difference is that the learning targets which might have an impact on this are much more clearly specified and progress towards them is measurable. This helps define the network more clearly and provides some element of long-term motivation – or else an end-point after which the network will be dissolved.

Examples

This type of network is particularly associated with what we call topic-based activities - where firms get together to try and understand and absorb a particular topic. Examples include quality clubs, user groups and other experience-sharing initiatives.



Figure 3: Outline of dimensions for learning networks





3.4 Type 3: Tight learning focus/ similar participants

Characteristics

Networks of this type are powerful vehicles for enabling traction on particular development issues. They represent a shared response from amongst a group of similar organisations with a clear sense of their learning targets. Because of their relative proximity they often have some sense of 'shared destiny' – for example, in sectoral development or supply chain learning programmes where the health of the whole depends on the performance of the average firm. Networks of this type usually form around specific issues – for example, the need in supply chains to improve performance on quality, cost and delivery parameters. These shared problem issues are distributed across different kinds of firm – perhaps by sector and size – but represent a common and coherent learning agenda.

Examples

Typical examples of this kind of network are supply chains and networks which are trying to extend their activities to enable learning and development. Examples include formal sector level activities aimed at cost reduction and performance improvement – CRINE (Oil and Gas), SCRIA (aerospace), Industry Forum (auto components) and other initiatives in chemicals, food processing and electronics.

3.5 Type 4: Broad learning focus/ similar participants

Characteristics

Networks of this kind bring together firms and individuals with a common background – for example, belonging to the same sector or professional grouping. They can provide powerful vehicles for learning since the participants share common experiences and perspectives, but the risk is that there is no clear focus for learning. In the absence of such targets the networks may become moribund – as with type 1 networks. Conversely when organised around a key theme of shared interest these can display a strong ownership from members.

Examples

Typical examples of this kind of learning network would be professional groupings with their continuing education and development programmes, groups of practitioners trying to establish new areas of work where the need is to convert tacit knowledge to shared knowledge, and sector groupings where there is a common interest group.

4. Setting up a learning network

Learning matters and it can be enabled through the use of networks. The big question is now one of how to begin that process. In this section we look at some of the key questions which we need to address in setting up your network: these are:

- Who is it for?
- What is it for?
- What will be learned?
- What type of learning will be involved?
- What shape should the network have?
- What mechanisms for learning will be used?
- What resources are available?



4.1 Who is it for?

The first step is to identify who are the target learners and what are their particular needs. What are the particular problems confronting them individually and collectively which make it important for them to learn, and what are the particular characteristics of this grouping which might influence the design and operation of the network?

Some useful questions here are:

Question	Issues raised
Size of firm – mainly small, mainly large, mixed?	Small firms may not have time or resources Large firms may not have mechanisms for transferring the learning back Mixed groupings may need facilitation to ensure that their wide interests are met, and that prescriptions for one type of firm are not simply applied to another different one.
Location – close together in same region, geographically dispersed	Mechanisms for networking will need to take this into account – local groupings can do more face-to-face networking
Nature of relationship between participants – competitive, collaborative, neutral	May affect the type and mechanisms of learning used. Supply chains involve an element of power whereas competing firms are unlikely to share information without some guarantees
Degree of similarity between participants – high/low	Similar firms often share common problems so it is possible to get focus on key shared learning – but they may also be competitors which sets up tensions in the network which will need careful facilitated management. Dissimilar firms may be willing to co-operate and share learning but networks of this kind require some kind of focus and some mechanisms to enable cross-sector or other kinds of shared learning
Degree of focus about learning objectives – high/low	Where there is a clear and focused target it is easy to organise a structured learning approach – for example a time-based series of workshops and training initiatives. Where there is less focus there will be a need to spend time early on defining and creating a sense of common purpose,



	otherwise the network will quickly become a 'talking shop'
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4.2 What is it for?

The issue here is to ensure clarity about what the network's purpose is. Without this there is a real risk that it will quickly become seen as a 'talking shop' which accomplishes little – and people will drift away. A good way to clarify the purpose is to construct a Statement of Purpose – a bit like a mission statement – which sets out for everyone the key points about why the network has come into being.

The following table helps construct such a Statement:

The purpose of the.... Network	Insert a name for the network – e.g. the West Sussex Surface Mount Technology Group
Is to	Insert a verb – encourage, facilitate, assist, etc.
Network members....	Describe the members – e.g. small electronics firms in the West Sussex region
To	Insert the type of learning envisaged – e.g. share experiences, hear about new concepts, diffuse best practice, etc.
About ...	Insert content/focus of learning - e.g. new developments in surface mount processes
By....	Insert learning mechanisms – e.g. regular workshops, visits to each other's factories, newsletters, seminars, etc.

In this example the emerging statement of purpose might be:

'The purpose of the West Sussex Surface Mount Technology Group is to facilitate sharing of experiences about new development sin SM processes by a combination of regular workshops, factory visits and a regular newsletter'

4.3 What learning agenda?

An important issue in any kind of learning is to make sure that the task is broken down into manageable chunks. It is no good saying 'I want to learn to be a better person' – we need to break this down – for example 'I want to learn to be more effective at communicating' would lead us t activities around these skills whereas 'I want to learn to be faster at running' would lead to a different set of activities. The more focused the target, the easier it is t construct learning mechanisms and inputs for them.

A second important point is associated with this definition stage; if we don't know what we want to learn, how will we know if we have learned it? The sharper the definition, the easier it becomes put measures of achievement in place. This is important in terms of motivating and sustaining learning in the long term.



Many learning networks form out of a general sense of concern and a recognition that members share a general need to learn new tricks. For example, a sector facing international competition on costs, or a region in which a major employer has just pulled out will be places where such a sense of collective motivation to learn can be found. But unless it is focused the chances of success are slim. We need to find ways of putting the learning agenda into focus, both in terms of the content and the steps on the way.

There are many tools to help with this and some examples are given in section 7. Examples might be the use of surveys of members to identify key and priority issues, or benchmarking to provide a focus on gaps which need to be closed in both performance and practice. It may also be possible to develop this learning agenda at a special launch workshop or other event; the important message is to ensure 'buy-in' from members and this will only come if they feel their concerns are being addressed through the network.

The CRINE programme in the UK oil and gas industry

One of the most successful attempts to mobilise supply chain learning has been the CRINE initiative in the oil and gas industry. Conceived in 1993 as a response to the 1992 oil crisis, CRINE (Cost Reduction Initiative for the New Era) was a joint effort involving government and key industry players representing contractors, suppliers, consultants, trade associations and others. The original goal was to enable, by 1996, an across-the-board cost reduction of 30% for offshore developments, and this was to be achieved by a sector-wide effort rather than individual actions. The main deliverables included:

- Σ *Clear functional specifications (29 have so far been developed, covering major equipment packages, materials and equipment to accepted industry standards)*
- Σ *Common working practices*
- Σ *Guidelines on procurement and documentation*
- Σ *Guidelines on alliances*
- Σ *Promotion of best practices*
- Σ *Standard contracts*
- Σ *Development of a Quality Performance System (which provides feedback on supplier capability)*

The project was successful on a number of dimensions – for example, by 1997 the cost of field developments had fallen by 40% on a barrel/barrel basis – and attracted significant international attention and emulation. For example CRINE-based programmes are now under development or in operation in Mexico, Venezuela, India and Australia. Significantly the participants felt that the model was worth maintaining and as a result the CRINE Network was established in 1997 with the new goal of international competitiveness replacing that of cost reduction. The vision is set out as:

'... People working together to make the UK oil and gas industry competitive anywhere in the world by the year 2000....'¹

The stretching target for the industry is to increase its share of the non-UK market to 5%; in 1996 this stood at only 1%, indicating a relative weakness in international

¹ CRINE Network website, 1999-01-06



competitiveness. (Significantly this position had already improved by 1998 to 2.4%, reflecting the industry's growing capabilities, partly supported by CRINE activities).

The current mode of operation is one of 'supported networking', where players from regional and national government (e.g. DTI, Scottish Enterprise), major operators, trade and research bodies, and academic and other groups provide various forms of support (financial, technical, etc.) to a network made up of the main actors in the supply chain. A small co-ordinating group manages the network activities and the whole is steered by a representative body drawn from the above players. Activities cover a broad front, including awareness and communications via newsletters, websites, etc., workshops and conferences, technical projects and other initiatives. In particular, progress towards the main goal is being managed through four Working Groups:

- Σ Supply group, aiming to create a 'world-class' supply chain
- Σ Wells group, aiming to double the value of every dollar spent
- Σ Training and education group, ensuring the relevant skills are available
- Σ Benchmarking and Deliverables group, responsible for deliverables against the key competitiveness targets

For our purposes it will be useful to review some aspects of the Supply Group and the mechanisms used to deliver learning and development. From an early stage the original CRINE programme sought to establish a learning and continuous improvement culture, encouraging dialogue and collaborative working between suppliers and customers, rather than confrontational modes of working. This provides a base for some more substantial initiatives; of particular relevance is the First Point Assessment programme. This is a company, owned by 11 major players in the industry, whose role is to carry out capability assessments and assist in upgrading and development of capability along the supply chain; '... to provide opportunities for improvement throughout the supply chain through enhanced knowledge of strengths and weaknesses...'.²

FPA works with Subscribers (essentially major customers, of whom there are 40 at present) and Registered suppliers (of whom there are currently around 2000). It employs 15 people and uses seconded engineers from major subscribing companies to carry out assessment and improvement work.

The NORSOK programme

Given the geographical proximity and the commonality of many operations it is not surprising that the Norwegian industry followed similar lines in developing the sector. In 1993 the NORSOK programme was initiated, with similar objectives of short-term cost reduction and longer-term competitiveness development. From the outset emphasis was placed on the total value chain and on developing a win-win/learning culture; as with the CRINE programme these intentions were focussed on a stretching 5 year target of achieving 40-50% cost savings. Such stretching targets were seen as important because '... people had to recognise that quantum change was required, that the historical

² First Point Assessment website, 1999-01-06



improvement rate was insufficient and business re-engineering would be required in many areas of work...³

As with CRINE significant progress was made; for example, in the Osberg operation unit operating costs reduced by 50% (1992-1996) with total platform operating costs cut by 43%. Much of the improvement is attributed to the networking and total chain emphasis and this has now been formalised into an arrangement similar to the CRINE Network which includes supplier development initiatives.

It can be useful to classify the kinds of learning concerns which different members have by the degree to which they are shared and seen as a priority. The following figure provides a useful map to position these; it draws on work by the Tavistock Institute in helping firms in the construction industry think about developing learning networks.

Learning issue of interest to many members	Supporting acts	Crowd pullers
Learning issue of interest to few members	Thetare – clearers	Speciality acts
	Low relative importance as seen by members	High relative importance as seen by members

It is important to recognise the need to move from broad level objectives to specific learning targets around which activities can be built. For example, 'learning how to reduce costs' might be a high priority and shared learning target but it can be broken down into several more focused targets – for example, learning about waste reduction techniques, learning about value analysis, learning about employee involvement in problem solving, etc. The following chart provides a template for thinking about this process of breaking down issues:

Priority learning challenge	Learning issues emerging from that	How? by	How? by
How to reduce costs?bylearning about 'lean production'learning about set-up time reduction	... specific learning topics around set-up time – for example, SMED, how different firms achieve it, etc.
	 learning about single unit flow techniques	
	 Learning about pull production flow techniques	
		Etc.	

³ Extract from speech by Thorsten Enger, Executive Vice-President, Norsk-Hydro at Annual EPCI conference, Stavanger, 11-13 June 1997.



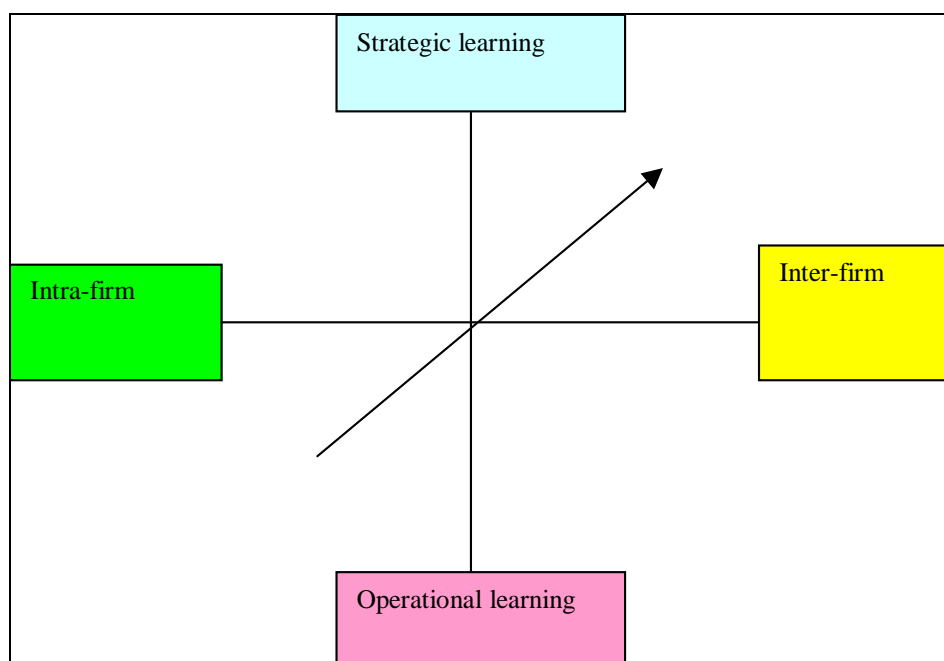
4.4 What type of learning?

There is one more important question which we should consider in trying to manage setting up a learning process – the type of learning which will be involved. This is not about the content but rather the challenges that might pose for people in the network. At one level learning can take place through simple information transfer which requires minor modification of the way the firm does something. An example here would be communicating an update to a set of standard procedures in purchasing or tendering. There is learning here but it does not pose much of a challenge to the firm, can be quickly absorbed and primarily affects the day-to-day operations of the firm.

But there are other types where the challenge is much more significant, where what has to be learned is complex and where the challenge to the way the firm operates is much more fundamental. For example, moving to total quality management, or faster time-to-market will involve significant reorganisation and rethinking of procedures and structures in the firm.

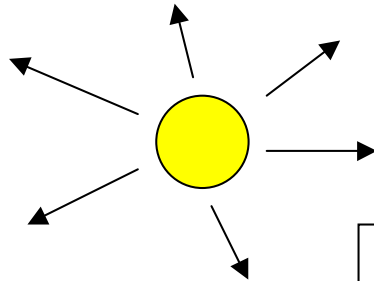
So we have a dimension which runs from simple operational through to strategic challenge learning. We also need to be aware of the degree to which firms can influence the learning process – in some cases the changes are all within their control but in others for example, where a supply chain is trying to tackle an issue of improving delivery speed and reliability, the task is shared amongst players and firms need to work in relation to each other.

The following chart provides a map on which you can position the type of learning involved in the network you are planning. Moving in the direction of the arrow increases the level of difficulty and the requirement for active management of the network.



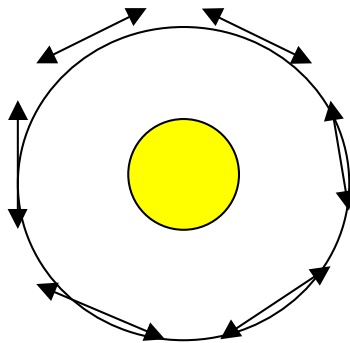


Three different models for learning network configuration

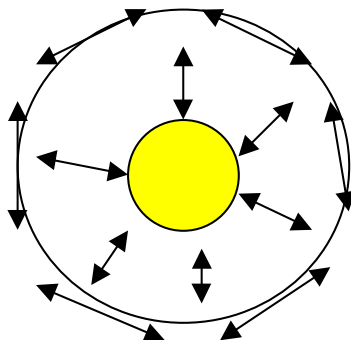


(a) 'Star' - Information flows in one direction out from a centre. Members do not need to meet or interact.

(b) 'Wheel' – extensive interaction between members



(c) 'Hub and spoke' – extensive interaction between members but centrally coordinated and facilitated





4.5 What shape should the network have?

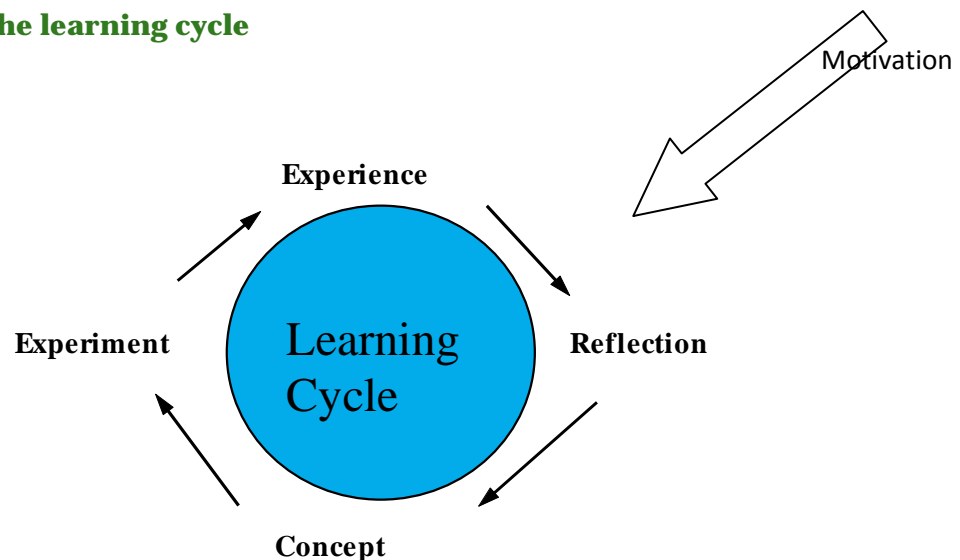
Networks can be set up in a number of different configurations and it is important to try and match the shape to the needs identified above. If the task is mainly one of 'broadcasting' – communicating information of an operational type to a range of firms who will absorb and act on it, then some simple form of 'star' model will suffice. But if there is a need for interchange, for sharing ideas and experiences, then some form of wheel is needed. And if the network faces challenging strategic learning then it is likely that some central co-ordination and facilitation will be important – leading to a 'hub and spokes' model.

4.6 What mechanisms for learning?

One of the most significant points to emerge in the research is that few organisations engaged in trying to set up and run learning networks make use of an explicit model of learning. This can mean that, despite considerable energy and enthusiasm and resource commitment, the overall process of learning may not take place or may be incomplete. For example, programmes which lay heavy emphasis on delivering new concepts to participating firms through seminars and publications may fail if they do not address the underlying question of motivation (why should we change?) or allow firms to learn through experience and thus internalise the lessons being taught.

It will be helpful to use a simple model of the learning cycle introduced earlier in Figure 4. We can use this framework to position the kinds of enabling mechanisms described here in an integrated approach.

Figure 4. The learning cycle



There are five components of interest; learning is seen as taking place when there is:

- Motivation to enter the cycle
- Experience
- Reflection
- Conceptualisation



- Experiment

We need to make sure in designing our learning network that we are able to provide mechanisms to help learning at each of these stages – otherwise there is a risk that despite a lot of activity no learning actually happens. The following table sets out the stages with some examples of typical mechanisms which can be used.

Mechanisms to support the learning cycle

Stage in learning cycle	Enabling mechanisms
Motivation - how to motivate and maintain motivation to enter and repeat the cycle	Approaches to create a 'wake up call' followed by systematic benchmarking and measurement to highlight where gaps are, to feed the strategy and the policy deployment process
Experience – how to share experiences and perspectives across the supply chain, and particularly to exchange different viewpoints	Meetings and workshops Newsletters and electronic equivalents – bulletin boards, user groups, websites, etc. Visits Review of case studies of other's experiences Reports and publications capturing experiences from elsewhere
Reflection – how to encourage different and critical ways of looking at operations within the supply chain	Structured and challenging assessment, maybe involving independent third parties, benchmarking, etc. Review of both performance and practice gaps. Facilitated reviews Use of reflection tools
Conceptualisation – how to bring in new ideas and models and integrate them with existing knowledge base?	Use of seminars, workshops, training programmes and through transfer or secondment of personnel. Examples include the master engineer approach in Industry Forum and the transfer of internal experience of TQM at Shorts to suppliers through secondment of shop-floor teams. Potential role for 'out of industry' inputs – through visits etc. Books, reports, web-based information Formal training programmes
Experiment – how to encourage trying out of new approaches and enable learning through experience?	Guided change initiatives – for example, projects under supervision of 'guest engineers', support for risk-taking including financial backing, 'handholding' with smaller firms as they



	try something different. (For example, Shorts help local SMEs develop a marketing approach and presence through resources, contacts and transfer of large company experience.
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One other point is worth mentioning here; not all mechanisms will be available to every network. There are some which re easy to organise – for example, face-to-face workshops or the production of a newsletter. But there may be others which require specialist skills, knowledge or resources and which may not be available. So a final check on mechanisms might be to think about which ones you can offer and which you might be able to configure with the use of other resources. The following chart provides a framework for thinking about this.

Learning agenda topic	Stage in learning cycle	Can we deliver these mechanisms?	If not what could we do to provide them?
e.g. How to reduce set-up time	Motivating	?	Use of external agents or tools to benchmark or audit
	Reflecting	?	
	Challenging and adding new concepts	?	Is there a source of specialist training which could be brought in? Or a good book or video?
	Experiment		
	Experience		Are there visits which could be arranged – e.g. through the DTI Inside UK Enterprise Scheme?

4.7 What resources do we have to support learning?

The last question in our design and planning is about resources – what do we have available and what do we have access to support the kind of learning network we have in mind. For simple networks dealing with operational learning the activity can be managed on a part-time basis, but as we move towards more complex and strategic learning models so the need for active facilitation and co-ordination increases. In general the richer the variety of resources available to the network the more chance there is that members will learn effectively.

For this reason it is important to do a preliminary audit of available resources; the following chart list some questions to help with this.



Learning mode	Resources
Motivating	Benchmarking and audit tools Assessment models and frameworks – e.g. Business Excellence Model, Probe, etc. DTI , RDAs, RSN, Business Links and local agencies Specialist Counsellors
Reflecting	Tools and frameworks for structured review and reflection Member firms with different perspectives
Acquiring and exploring new concepts	Universities, consultants and other expert sources Libraries and databases Sector and regional bodies Government – e.g. DTI ‘Best Practice’ initiatives ‘Inside UK Enterprise’ and other forms of company visiting Web-based resources
Experimenting with new ideas	Support resources – money for pilot projects, staff – student projects, teaching Companies, etc.
Experience sharing	Facilitation for workshops Newsletter Bulletin boards, etc. Facilities for holding workshops

4.7.2 Facilitation

One last point is worth making when considering resources for supporting learning networks. This is the role played by key individuals or groups who provide some form of facilitation to the process. Evidence is clear; most networks do not form without inputs of resources and one of the most important is the set of skills to enable the network to operate effectively. These skills are essentially concerned with process support rather than with delivering particular inputs of content, but they are critical to success. Facilitation skills fall into several categories but include the ability to listen and communicate members needs and concerns around the network, the ability to motivate and where necessary provide direction, the ability to act as knowledge capture agency, etc. The role can be played on a part-time or full-time basis but with larger networks or those with a clear learning focus it is often valuable to have a full-time resource for this task. Such individuals have various labels – co-ordinator, network broker, etc. – but the skill set required is the same.



4.8 Summary

This section has looked at the key questions involved in planning and setting up a learning network. In summary these were:

- Who is it for?
- What is it for?
- What will be learned?
- What type of learning will be involved?
- What shape should the network have?
- What mechanisms for learning will be used?
- What resources are available?

The next task is to actually start to operate the network and this raises some new issues which we will now explore.

5. Operating the network

Having designed the network we now move to actually operating it. In essence we are trying to create and run a particular kind of organisation – and just like any organisation it won't function without some attention to its core processes. We have identified eight core processes which are important in networking and these are outlined in the following table:

Table 4: Eight core processes in inter-organisational networking

Process	Underlying questions
Network creation	How the membership of the network is defined and maintained
Decision-making	How (where, when, who, etc.) decisions get taken
Conflict resolution	How (and if) conflicts are resolved
Information processing	How information flows and is managed
Knowledge capture	How knowledge is articulated and captured to be available for the whole network
Motivation/ commitment	How members are motivated to join/ remain in the network – e.g. through active facilitation, shared concerns for development, etc.
Risk/benefit sharing	How the risks and benefits are shared



Integration	How relationships are built and maintained between individual representatives in the network
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Although we can build learning networks in a variety of ways we suggested earlier that they can be grouped into one of four categories, based on two dimensions:

Degree of similarity between firms is low	Type 1 networks	Type 2 networks
Degree of similarity between firms is high	Type 4 networks	Type 3 networks
	Learning focus – what firms want to learn – is broad and loose	Learning focus is tight

If we think about our learning networks as falling into these four types, then they raise issues around each of these processes. In the following section we look at each of them, with some illustrations of how particular problems were dealt with and some examples by way of illustration.

<i>Type 1: Broad learning focus/ dissimilar participants</i>	<i>Typical issues</i>	<i>Typical responses</i>	<i>Illustrative cases</i>
Network forming	<p>The main motive for this kind of network is the shared development of a learning and development agenda, creating a forum in which firms can explore issues around their growth – but these tend to be wide-ranging and often lack a clear focus or mechanisms.</p> <p>Selection of partners is often on the basis of proximity in geographical or sectoral terms and such networks are open – both to easy entry but also rapid</p>	<p>Recruitment to such networks often depends upon key individuals prepared to champion or provide a focus. They can also be enabled by regional development and other support initiatives, in which case there is an issue of maintaining them when the grant or subsidy expires. Their success depends in part on developing a clear and shared learning agenda with targets and mechanisms; for this reason they</p>	<p>Norwesco – a grouping of different predominantly SME firms in the cross-border region of Ireland, where the link was a shared interest in improving innovative capability.</p> <p>Norwesco is a cross-border initiative which has funding from various agencies including the EU and this provides enabling capability in the form of facilitation and workshop support.</p> <p>Newhaven</p>



	<p>exit.</p> <p>Type 1 networks often form in response to crisis – for example, a major threat or disruption to sectoral or regional economic structure. A typical case might be the closure of a major employer – say a steelworks or a shipyard which forces a rethink and a shift in behaviour amongst the remaining firms, many of whom would have been highly dependent. There is a clear need for learning new approaches, but often a lack of understanding about what has to be learned or how.</p> <p>Can often be seen as a ‘talking shop’ and may suffer from gradual decline if they are seen as not bringing much more than this. Successful type 1 networks evolve into structured and focused activities, often getting closer to a type 2 character.</p>	<p>depend on facilitation for their success. Active participation of core members can also provide a sense of momentum – for example, through hosting meetings, proposing initiatives to attract participation of others, etc.</p> <p>The use of tools like benchmarking and auditing/ self-assessment can provide a powerful focus to help define and sharpen a learning agenda.</p> <p>A great strength of type 1 firms lies in their dissimilarity, since this implies a wide range of different experience; potential learning can take place through sharing these perspectives but this need to be enabled through facilitated meetings, workshops, visits, etc.</p>	<p>Employers Group – a small network of local firms in the Newhaven region with a shared interest in upgrading and economic development</p> <p>NASURF – the National Surface Engineering Centre – is a broadcasting network aimed at improving awareness of good practice in surface engineering. Its target audience is essentially composed of many small firms, widely dispersed across sectors and geographical regions. It makes use of existing networks where the involvement and at least partial commitment of members is secured through their business associations.</p>
Decision-making	Most decision-making is at a simple operational	Such networks need to move beyond being a	In the Specialist Counsellors network



	<p>level – there is little in the way of shared resources to dispose. Key questions about setting learning agenda and direction may emerge but these are usually handled by the dominant players or by the facilitator/co-ordinator.</p>	<p>talking shop and this will depend on someone taking co-ordinated decisions; for this reason strong ‘champion’ participant firms and/or facilitators prepared to take on this role are critical to success.</p>	<p>organisation and decision-making is managed by the Network Broker on behalf of members and the DTI as the other stakeholder</p>
<p>Information processing</p>	<p>As with all learning networks, a key process is around communication, and this becomes important where there is little direct connection between participating firms. Since they not meet except at network events, emphasis needs to be placed on multiple mechanisms to enable communication and information sharing/processing .</p> <p>The risk if communication channels are limited is that the network loses a sense of identity and the motivation to participate is reduced.</p>	<p>Information processing can be enabled by active management of the communication process – again a role for facilitator/co-ordinator – and by the use of multiple channels. These can include newsletters, multi- and bi-lateral contacts, regular face-to-face exchanges, etc. Of particular value are enabling technologies – for example there is considerable potential for web-based bulletin board/newsletter type activity.</p>	<p>The KwaZuluNatal Benchmarking Club is a regionally-based network supporting auto component manufacturers. It arranges a regular workshop series, maintains a website and publishes a monthly newsletter; in this way it acts as a communication manager to promote and extend exchange across the membership.</p>
<p>Knowledge capture</p>	<p>As with information processing, this is an essential feature in learning</p>	<p>Knowledge management as an active approach is critical to a healthy learning network –</p>	<p>The PLATO regional network is intended to enable upgrading and development of</p>



	<p>networks. If they are to avoid becoming 'talking shops' there needs to be a structured approach to articulating and capturing learning – for example, building on experience-sharing events to create a shared approach to a particular problem.</p> <p>The risk here is that the lack of focus will mean that the participants meet to share a concern for learning but are not able to focus or articulate it and the network atrophies. Active organisation and facilitation of a type 2 network will be important, defining a clear focus for learning which can help development of members and which can be enabled by knowledge capture and sharing.</p> <p>A related issue is the relationship between tacit and codified knowledge; typically type 1 networks have members with extensive tacit knowledge but unless this is</p>	<p>and again this places much emphasis on the role of facilitators. Creating structures to enable knowledge articulation – for example, through the use of structured frameworks, benchmarks, etc. – and for sharing via workshops etc. are important.</p> <p>A second set of approaches concern the capture and codification of knowledge – acting as a centre for recording and making available shared knowledge is critical – for example, through development of databases, training programmes or newsletters. Again technology does not yet but could play an important role in this process – for example through workgroup tools, databases, bulletin boards, etc.</p>	<p>SMEs and operates a number of mechanisms. Knowledge capture is facilitated by a website, a members directory and a newsletter.</p>
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	codified and shared in a structured fashion it will not be available to others.		
Motivating	Motivation to join type 1 networks is often a matter of shared concern about a threat or a structural change. The issue here is more one of maintaining motivation in the longer-term and the risk is that with a lack of focus as described above there may well be fall-off in participation. There is also the related issue of maintaining links with smaller firms; subscription can provide a way of retaining interest but this is not always viable.	The use of active measurement approaches – such as benchmarking – which help provide a degree of focus and which offer the opportunity to re-launch on a periodic basis is important here. Once again this argues for a strong organising role on behalf of the facilitator.	Most networks of this type were actively supported by a full or part-time Network Broker who provided a range of facilitation services and whose role included maintaining momentum. In some cases – e.g. the KZN benchmarking Club further motivation came from the use of a framework against which progress could be measured.
Integrating	Maintaining a sense of coherence and co-ordination across different activities is important if type 1 networks are not to decline into talking shops or other loose and informal arrangements.	The relative lack of focus or targeting of learning means that type 1 networks often form as a response to a crisis but are then unable to progress. Aids to progression include active facilitation and co-ordination via multiple methods and channels.	Via Network Brokers and facilitators in the cases examined.
Risk/benefit sharing	Type 1 networks carry relatively		



	little risk; members are investing time rather than money and there is little risk of divulging competitive advantage since participating firms are dissimilar.		
Conflict resolution	Although many type 1 networks are relatively unfocused, there may be some scope for conflict in terms of the differing interests of what are often widely dissimilar partners. Most usual response to conflict is simply to exit the network.	Where relevant this is usually handled by network brokers or facilitators	

<i>Type 2: Tight learning focus/ dissimilar participants</i>	<i>Typical issues</i>	<i>Typical responses</i>	<i>Illustrative cases</i>
Network forming	This type of network often forms for the same reasons as type 1 – some external force such as an economic crisis or threat – motivates firms to realise the need to acquire and absorb new knowledge. The major difference is that there is a focus around which the network can form – often a specific topic or technique – which provides the ‘glue’ which	As with type 1 networks the heterogeneous nature of participating firms means that there will be a need for an active champion and/or facilitator to create the structure and mechanisms to enable the network to function. Of particular relevance is the need to define a clear and staged learning agenda around which	Typical topic networks include various clubs formed to help share good practice around themes like quality, just-in-time manufacturing, time compression, etc. An example of a major initiative of this type is the Irish Manufacturing Action Learning Network which was a programme to



	binds members together and gives a sense of identity. Type 2 networks are often constituted as formal clubs and may well use subscription and other formal devices to define and maintain membership.	different activities – workshops, small meetings, special interest groups, etc. – can be built. For this reason measurement tools like benchmarks or audits can be powerful; resources, especially if they are used in comparative mode with members of the club.	help SMEs develop competencies in 'world class manufacturing'. Supported by Trinity College, it made use of an assessment framework to help engage interest amongst participating firms.
Decision-making	As with type 1 networks there is little strategic decision-making required but a fair bit of operational work – for example, planning and executing different learning events, etc. In addition the subscription income involved may enable particular kinds of activity. Most decision-making in this type of network is handled by the co-ordinating individual or organisation; members are essentially passive consumers of learning services.	Emphasis on formal co-ordination and facilitation to ensure things happen and the learning agenda is appropriate. This requires a high level of consultation although actual decision-making is usually on the part of the co-ordinator.	CIRIA's Construction Productivity Network is co-ordinated and managed by a small team, and decisions are taken by this group in consultation with a Steering Committee made up of members. Many clubs have some form of decision-making structure which handles these issues on behalf of members – for example, the BQF, BDA, NSQTW, etc.
Information processing	One of the critical processes in learning networks, this involves ensuring regular and free-flowing	Enabling effective information processing depends on developing multiple channels and mechanisms.	Websites, newsletters, regular workshops and conferences are used by many of the networks



	<p>communication between members. This can take many forms – from face-to-face exchange, through to broadcast information in one direction.</p> <p>Problems can occur if there is minimal or one-way communication within the network – for example, workshops which are simply ‘telling’ sessions, or the issuing of news bulletins from a centre.</p>	<p>Effective type 2 networks tend to use a combination of facilitated workshops (with extensive time for networking), regular newsletters and bulletins, inter-firm visits,</p>	<p>examined – for example, CIRCA, CIRIA, CRINE.</p>
Knowledge capture	<p>In parallel with information-processing there is a need to ensure effective capture and sharing of knowledge. If they are to avoid becoming ‘talking shops’ there needs to be a structured approach to articulating and capturing learning – for example, building on experience-sharing events to create a shared approach to a particular problem.</p> <p>The risk here is that the lack of focus will mean that the participants meet to share a concern for learning but are</p>	<p>Type 2 networks have a significant advantage if they have a clear learning focus and agenda, since this allows for knowledge management structures and measures to be built in. Active facilitation of the knowledge articulation, capture and sharing is critical; links with researchers and others can be valuable.</p>	<p>Frameworks to help capture knowledge include benchmarks, assessment databases and models of ‘best practice’. An example is the CI capability model developed within the CIRCA project ISCAN operate a website on which case studies are captured and made available for others, whilst CRINE have a database.</p>



	<p>not able to focus or articulate it and the network atrophies. Active organisation and facilitation of a type 2 network will be important, defining a clear focus for learning which can help development of members and which can be enabled by knowledge capture and sharing.</p> <p>A related issue is the relationship between tacit and codified knowledge; typically type 1 networks have members with extensive tacit knowledge but unless this is codified and shared in a structured fashion it will not be available to others.</p>		
<p>Motivating</p>	<p>As with type 1 networks motivation is usually driven by a perception of the need to change (which may be as urgent as a crisis or sometimes an early recognition of emerging threats). This provides a short-term motivation but this needs to be maintained and sharpened</p>	<p>Enabling mechanisms are associated with clarifying and focusing the threat and defining a coherent and staged learning response. This can be assisted through the use of measurement tools – e.g. benchmarking – and by active facilitation.</p>	<p>In most cases this came through a combination of ‘internal’ motivation – the continuing desire to learn driven by some form of measurement framework, and external facilitation through network brokers or co-ordinators.</p>



	otherwise momentum and participation will fade.		
Integrating	Maintaining a sense of coherence and co-ordination across different activities is important if type 2 networks are not to decline into talking shops or other loose and informal arrangements.	Active facilitation and regular, multiple channel communications are important enablers. Technology could play an important role, especially through the establishment of 'virtual' communities.	Via network brokers
Risk/benefit sharing	As with type 1 examples, there is little risk involved in learning networks and the main commitments are of time. Nonetheless there is a need to ensure that the cost/benefit is perceived as worthwhile, and this raises issues of motivation. Most type 1 and 2 networks have low entry and exit barriers – in contrast to innovation networks where there are clearly high costs and risks. ``	Much of the risk/benefit sharing is accomplished through the effective operation of the club – firms will invest their time and resources if they perceive a learning benefit. Experience suggests considerable 'give and take' but this does depend on facilitation.	Most networks of this kind studied involve a subscription which provides a small expression of commitment.
Conflict resolution	Again low potential for conflict in such networks but there may be some areas in terms of the learning		Many clubs have some form of decision-making structure which handles these issues on behalf of



	programme and the overall direction. Conflict resolution is most likely to take place through exit rather than confrontation, though in some subscription networks there may need to be facilitation of the process.		members – for example, the BQF, BDA, NSQTW, etc.
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<i>Type 3: Tight learning focus/ similar participants</i>	<i>Typical issues</i>	<i>Typical responses</i>	<i>Illustrative cases</i>
Network forming	<p>As with other learning networks, type 3 are usually formed in response to some perceived trigger for learning, usually a threat. For example, the increasing competitive threat around global sourcing in the automotive components sector led to SMMT setting up the Industry Forum; a similar story emerges for the CRINE initiative in the oil and gas sector.</p> <p>Possible problem issues here concern the different perceptions of the threat; whilst there may be a clear motivation visible to major players in a sector or region,</p>	<p>Whilst there may be powerful motivations for setting up a type 3 network these often need to be managed and communicated – for example, in the design of an appropriate programme of work and in ‘selling’ the idea smaller and less involved participants.</p> <p>Key enablers here include active champions from key player firms, professional and extensive facilitation (co-ordinating efforts on this scale may not be possible on a part-time basis), pump-priming finance to enable initial activities,</p>	<p>In the SALIGNA case participants came together to exploit a perceived market opportunity in producing and marketing environmentally sustainable hardwood furniture – but they realised the need for shared learning.</p> <p>In the SMMT Industry Forum case the motive was the threat to employment through failing competitiveness amongst UK auto component suppliers</p>



	<p>this may not be so clear to smaller participants who will correspondingly have less interest in joining the network. In addition there may be differences of view as to the best response; defining a shared learning agenda and action programme often involves considerable energy on the part of network organisers.</p>	<p>publicity, etc.</p>	
<p>Decision-making</p>	<p>Mostly carried out by the network organisers on behalf of members, this can be an issue where conflicting interests emerge – for example, in selection of projects or other learning activities. In the case of Industry Forum, for example, decision-making is carried out by a Board which steers and guides the development of the networks activities.</p>	<p>Enablers here are, as before, active facilitation and co-ordination on behalf of members to ensure their interests are represented and that the network is meeting their needs. With this framework in place there is less need for devolved decision-making; the wheel and hub model appears to work well. This places emphasis on communication mechanisms.</p>	<p>In many supply chain learning initiatives there is a designated group – in some cases a specific organisation – which handles these issues on behalf of members.</p>
<p>Information processing</p>	<p>As before, a critical process in learning networks. Without adequate communication – both in terms of frequency and content – the</p>	<p>Use of multiple channels and mechanisms. Extensive facilitation. Technology support to enable active</p>	<p>Growing use of websites and other electronic media to complement workshops and paper-newsletters etc. amongst most case examples.</p>



	network is likely to fade. A particular issue in this kind of network is ensuring that smaller firms remain involved.	communication.	
Knowledge capture	Of particular relevance since there is potential competitive advantage to be gained from capturing and sharing the tacit knowledge gained from work on particular learning targets. For example, the development of strategic competence in a particular area within a sector could put UK firms in a stronger international position – but would need careful capture, documentation and management of knowledge created through shared learning processes.	Active knowledge management and facilitation Use of knowledge capture and sharing approaches Active deployment of learning process model Visits and other experience exchange mechanisms	Network brokers and co-ordinators deal with this kind of issue – and this often means there is a risk of losing valuable tacit knowledge. Industry Forum are looking at explicit knowledge capture approaches, whilst many supply chain learning initiatives are at least trying to capture through case studies some of the available and emerging good practice. The Regional Supply Network is actively looking at ways of codifying and sharing good facilitator practice.
Motivating	Initial motivation for type 3 networks is often high because of perceived shared interests and concerns. Main problem issues are around maintaining momentum in the long term and in engaging smaller and less	Much of the motivation comes from a shared perception of the need for change and continuing learning, and this can be reinforced by active “governance” of the supply chain or network by key players.	Measurement frameworks are of considerable value here – for example, CRINE, SCRIA, Industry Forum all use formal and clear benchmarks to drive and focus improvements.



	experienced players.		
Integrating	Maintaining a sense of coherence and co-ordination across different activities is important if type 3 networks are not to decline into talking shops or other loose and informal arrangements.	Building and maintaining a sense of trust and common purpose is important and this is often achieved through a combination of workshops and face-to-face meetings backed up by facilitation	Mostly achieved via network brokers and facilitators
Risk/benefit sharing	Risk and benefit levels still relatively low but participation will require commitment of time and some financial resources.	Where gains are system-wide – for example, through improved supply chain performance – there is the possibility to share benefits; equally the underlying motivation in many of these arrangements is that a failure to learn could result in exclusion	Needs third party facilitation if the issues move beyond relatively open learning agendas
Conflict resolution	Again low potential for conflict in such networks but there may be some areas in terms of the learning programme and the overall direction. Conflict resolution is most likely to take place through exit rather than confrontation, though in some subscription networks there may need to be facilitation of the process.		

<i>Type 4: Tight</i>	<i>Typical issues</i>	<i>Typical</i>	<i>Illustrative</i>
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<i>learning focus/ dissimilar participants</i>		<i>responses</i>	<i>cases</i>
Network forming	As with type 1 networks these have low entry but also low exit barriers. Participants have much background in common but need a focus around a particular learning issue.	Focus can be enabled through facilitation or through clarifying and articulating a specific programme of change and development – for example through a benchmarking exercise.	The Specialist Counsellors Network was set up by DTI to help in the continuing education and development of practice amongst the specialists attached to the Business links to provide support to SMEs. This profession does not really exist and so members have to invent it, and there is value in networking to exchange emerging ideas about good practice, useful tools, contacts, etc.
Decision-making	Limited to operational issues	Facilitation and active co-ordination.	Mostly handled by network organiser and brokers
Information processing	Critical to effective network performance – depends on multiple channels and mechanisms	Active co-ordination Facilitated dialogue around structured issues Multiple channels – meetings, visits, newsletters, websites, etc. Technology has potential but not widely used.	The Specialist Counsellors have quarterly workshops and also exchange ideas via an intranet and on a bilateral basis.
Knowledge capture	Necessary to move from type 4 to type 3, with a sharpening of focus. Mechanisms needed to ensure	Knowledge management approaches needed across the entire learning cycle. Articulation and	Mainly handled by network brokers and captured in databases and intranet



	articulation, capture and sharing of knowledge.	diagnosis – through audit/benchmarking/ problem finding tools.. Introduction of new concepts through workshops, seminars, newsletters, etc. Experience sharing and capture through meetings, visits, case studies, newsletters, websites, etc.	
Motivating	As with type 1 initial motivation is not an issue since entry barriers are low and participants already share much in common. Main issue is maintaining momentum and interest - and this will be a combination of integration and coordination and the use of a sharp and developing learning focus.	Active co-ordination and facilitation. Challenging reflection through peer pressure, use of frameworks and benchmarks, etc.	Partly achieved through shared sense of development and partly enabled by pump-priming funds to support the network meetings
Integrating	Important to develop sense of identity and purpose across the network. To some extent the common background of members facilitates this.	Active co-ordination using multiple channels	Largely informal
Risk/benefit sharing	Little risk involved so not a major issue.		
Conflict resolution	As with risk sharing, little scope	Active facilitation and network co-	



	for major conflicts. Most likely form of resolution is exit rather than confrontation or compromise.	ordination.	
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5.2 What factors block or help effective learning networks?

Participation in learning network programmes require changes to an organisation's operations. For relatively unfocused type 1 or 4 networks this will be less of an issue than for type 2 and 3 where they may be some pressure to change. The process of changing individual behaviour, breaking old habits and introducing new ideas and approaches can be seen as a threat to staff. Change can also bring perceived risks to measurable performances such as costs and revenues. "If it ain't broke why fix it" underlies what will be on most people's minds.

The benefits of what can be achieved from a learning programme are a function both of time, and the value of the practices which are transferred. For example routines may only take a matter of weeks to transfer, whereas changes in organisational culture may take years.

What are the factors which can help accelerate – or block the development of learning? Let's look first at the barriers:

Barrier	Description
Organisational Culture	<p>One of the major difficulties in implementing learning networks is the context in which most firms operate which still reflects a set of beliefs – a culture – of adversarial, fragmented and short-term relationships. Co-operation is still not a dominant feature of much of industry, although in many of the cases we explored, the picture was more optimistic with at least a partial espousal of the core principles of shared learning and mutual development.</p> <p>Other cultural features, which inhibit forming and running effective learning networks, include: a parochial approach to new knowledge (the 'not invented here' effect), arrogance ('there's nothing we can learn from x') and complacency (reluctance to acknowledge or take ownership of the problems confronting the sector or supply chain).</p>
Lack of motivation	<p>Learning depends on recognising the need to change and entering the kind of cycle described earlier in the report. So it follows that a major barrier to learning will come in those cases where there is no recognition of such a need. This is a significant problem for much of UK industry; even those cases where learning networks have begun to develop we can trace the initiatives back to some form of crisis where the very survival of the sector was an issue. Under these conditions change becomes imperative – but the risk is that by then the conditions may be too bad to permit recovery even with rapid learning.</p>



	<p>Lack of motivation can come from several sources. For many SMEs it may simply be ignorance or insulation from the realities of what is now a globally competitive marketplace. For others – particularly larger and well-established firms - it may be a kind of corporate complacency in which the very survival of the firm argues for its continued ability to cope. ‘We’ve seen this before and we’ve managed to survive – we don’t need to change, just batten down the hatches’. Another problem is the ‘not invented here’ problem where firms or even sectors do not see the relevance of new practices or ideas; a good case here was the UK resistance for many years to the principles underpinning Japanese manufacturing techniques. A further problem here is the inability to trust other members in the supply chain. The concepts of the open book approach or collaborative planning are often seen as a threat rather than an opportunity and are therefore not pursued. And a major problem of lack of motivation arises from the pressures of day-to-day fire-fighting; in these circumstances, firms are unable to take a strategic and long-term view.</p>
<p>Lack of active co-ordination</p>	<p>A key role observed in successful learning networks is that of the co-ordinator firm or individual. Providing a mixture of energy and expertise, this agency effectively promotes the setting up and running of the network; it follows that in those cases where this role is absent the network is likely to run into difficulties.</p> <p>This is especially important in the case of supply chain and other forms of type 2/3 learning but we need to recognise that in many cases the key firm may not be able or even prepared to act in this capacity. In some cases the co-ordination is a latent role but the firm in question lacks the experience or skill to promote the concept – perhaps because it has not yet developed its internal operations to a requisite standard.</p>
<p>Lack of structure</p>	<p>Learning is not a natural consequence of the operation of most firms and so specific structures need to be created to enable its operation – for example through sector associations or regional initiatives. Learning programmes need to be structured in terms of operating processes, frequency of interaction, type of interaction, co-ordination of activities, risk and benefit sharing, etc. Without a structured approach, most learning network efforts fail.</p>
<p>Lack of support</p>	<p>With type 2 and 3 networks which are targeted at specific learning and change objectives there is a need for top management commitment to provide the impetus and the resources to enable them to flourish. In a number of cases where such initiatives have stalled, the ‘lack of top management support’ was regularly cited, and it finds expression in a lack of resources, a lack of time allocation or other constraints to the process.</p>



	<p>Related to top management support is the absence of champion figures – both in technical and organisational terms – who can drive and energise the change process. The champion has to be motivated and have managerial input to effect change. This usually means a manager with organisational clout at the senior levels, and not just during the set-up phase.</p>
<p>Lack of learning skills /facilitation</p>	<p>Despite the recent surge of interest in ‘learning organisations’ most organisations lack learning skills. They are accustomed to the repetition of established routines (‘the way we do things around here’) and change only occasionally with the introduction of new products or processes or in response to major external threat. For this reason the kinds of skill necessary to organise and co-ordinate learning experiences, and to ensure that knowledge is captured and absorbed into the organisation, are usually absent. There is a significant requirement for facilitation skills – process skills that are associated with active learning.</p> <p>Two issues arise which limit the diffusion of learning networks. The first is the relative absence of these skills in existing networks and the second is the absolute lack of such skills in the labour market; although there is scope for many actors to become involved there is an urgent training and development requirement in this area.</p>
<p>Lack of strategic focus</p>	<p>A number of learning network programmes failed or ran out of steam because of a lack of clear and shared targets. Significantly, programmes that have achieved a measure of success have been established at the sector or major chain level and have developed a coherent long-term strategic vision.</p> <p>As with many change programmes there is a risk that the learning network becomes perceived as a short term, fashionable initiative and gradually fades into the background..</p>
<p>Lack of measurement</p>	<p>Learning networks – particularly of the type 2/3 variety - depend on suitable measurement frameworks to guide and focus improvement projects. An example is the quality, cost and delivery framework used in the Industry Forum programme. Without suitable measures it is difficult to target learning or to measure progress – and this has a bearing on the ability to maintain interest and momentum in the long term.</p>
<p>Size of firm</p>	<p>Although SMEs are flexible and in principle adapt easily to changes, it is also true that many of them do not have adequate resources to invest in developing their capacities through participation in learning networks. There is also the issue that many SMEs are owner managed and this group are often fiercely independent – militating against participating in schemes aimed at promoting collective efficiency in learning an other activities.</p>



Let's look now at those factors which can help enable successful learning networks. Inevitably many of these factors represent the mirror image of the blocking factors; this suggests that action can be taken either to reduce one or promote the other.

Enabling factor	Description
Motivation	Learning does not happen by accident and a common feature of almost all the cases was a perception of crisis – a 'wake up call' – which triggered the process. Whilst crisis is undoubtedly a powerful motivator, the problem is that by the time it hits a firm or sector it may be too late to do anything in response. There is considerable value in mechanisms, which can raise the level of awareness of the need for change and promote a sense of urgency ahead of the crisis point. Examples which we encountered include benchmarking studies (which highlight gaps), comparative visits, value stream mapping and problem workshops.
Strategic target/ focus	<p>The problem with developing motivation is that it needs to be harnessed and focused on specific action plans. Without a clear – and achievable - set of targets it is likely that the energy will dissipate. Successful learning networks appear to depend on identifying simple, shared and strategically important targets around which various activities can be channelled and against which progress can be measured. For example in the Industry Forum case the targets are based on three key factors – quality, cost and delivery performance – whilst in the CRINE activity in the oil and gas sector an overarching target of x% cost reduction within y years was used.</p> <p>Thus, successful cases – particularly of type 2/3 networks - reflect a clear overall focus to the process and a time frame within which it will happen. The process of translating these high level targets into specific and often detailed projects at firm level is essentially one of 'policy deployment' – breaking down the big strategic picture into manageable chunks which can form the basis of multiple improvement projects and development of capability</p>
Structure	Having created the momentum for change and set strategic targets which are shared, the implementation of learning networks depends on having a clear operating structure. There is no single template for this but successful operation will depend on building mechanisms to deal with the eight core processes comprising the ION model.
Measurement	A key element in continuous improvement activity within or between firms is measurement since without it there is no way of assessing progress. In the case of type 2/3 networks it is essential to provide clear frameworks, which identify relevant key



	<p>performance indicators which can be used to drive the improvement and learning process. A good example is the simple quality, cost delivery metrics framework used in the Industry Forum programme.</p> <p>Related to this is the use of regular assessment against these or other metrics; this can often be undertaken by external third parties who provide feedback and help direct the learning activities; this approach characterises the oil and gas industry programme.</p>
<p>High level commitment</p>	<p>Of particular relevance to type 2/3 networks is the point that top management commitment is needed to make learning work. In the cases we examined, it was clear that there was often a difference between lip service and the requirements for real support, with the latter requiring active participation in the agenda-setting process as well as in committing resources. For example, the Industry Forum process requires senior executives to join what is effectively a steering committee monitoring the development process across a group of firms in a supply chain. In brewing, senior level commitment in the governing firm was critical not just in the realisation of short term gains from supply chain learning (SCL), but also in this sustaining of the SCL initiative over time.</p> <p>Our case reported commitment to be an important enabling factor. In particular, three case firms stated that the support of senior management was imperative to the success of the programme. But it was not only a commitment to fulfilling objectives: one firm judged that it was its commitment to learning from its suppliers that led to trust being developed and opened up new opportunities for SCL.</p> <p>One important indicator of commitment is the number of staff or scale of activity, which is genuinely concerned with supply chain development and learning issues rather than simply procurement and purchasing. In one case, for example, a major firm with a turnover measured in excess of £1bn had only one person directly committed to SCL.</p>
<p>Champions</p>	<p>As with any change programme progress with learning networks is enabled by the actions of champions at various levels who can bring energy, ideas, initial ownership and enthusiasm to bear. There appear to be two key types of champion relevant here – the ‘power promoter’ who can provide the push and the ‘technical promoter’ who can facilitate the learning process, provide new knowledge, etc. Equally the absence – or the departure – of champions can have an adverse effect. In our case studies it was often possible to identify by name key individuals with whom the success of programmes were linked.</p>



<p>Facilitation</p>	<p>In trying to introduce and sustain an unfamiliar process – learning between firms – there is strong evidence that some form of facilitation is required. The metaphor can perhaps be drawn of the teacher as someone who enables others to learn; the actual learning must be done by the individuals involved, but a skilled teacher can help make the process work through a combination of encouragement, support mechanisms, tools, measurements, etc. In the same way inter-firm learning requires significant process skills in setting up and running a shared learning process across firms of varying backgrounds and experience. Importantly, facilitating skills of this kind are not the same as possession of expertise in a technical domain; rather they are concerned with the process of enabling learning. For this reason some programmes, which confine the transfer of knowledge to technically expert people have limited success because of the lack of process skills. The experience of a number of the case-study firms support this judgement. The aerospace company, for example, sought staff consensus before making decisions.</p> <p>Related to this is the question of ‘learning to learn’ and internalisation of change inputs. This is essentially similar to the problem of technology transfer where there is a risk that the recipient fails to absorb or understand the technology transferred and remains dependent on the supplier. In some SCL programmes efforts were being made to identify and develop internal change agents with the task of facilitating learning and absorption</p>
<p>External Intermediaries</p>	<p>A variant on the facilitation theme is the use of external agencies to play an intermediary role – in particular to help deal with issues about lack of knowledge and information about the potential tools, which can be used to promote inter-firm learning, and lack of trust between parties involved.</p> <p><i>There are a clutch of potential intermediary organisations. Government may have an important role to play, either through its central operations or through its regionally based agents. Business associations, representing voluntary groups of private sector firms offer another possible agent, and a third category consists of research and academic institutions.</i></p>
<p>Tools</p>	<p>A range of support resources have helped with the implementation and operation of inter-firm learning. These include tools for mapping and measuring the gaps to be closed and the problem issues involved – for example, benchmarking and value stream mapping tools. Another important element is the use of information and communications technology to augment direct interaction amongst members of firms involved in such activities. For example, in a short telephone survey of firms involved in supply chain learning, 16 of the 25 companies’ felt that IT had played a part in running the initiative. E-Mail and the Internet –</p>



	and in some cases 'faxbans (from fax and kanbans) were cited as the main technologies used in the initiative, both of which helped to improve communication between customers and suppliers. The aerospace example also showed where tools were actively transferred to suppliers. The tools were then implemented to achieve desired benefits (tools included SPC, EFQM, set-up reduction etc.)
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6. Sustaining the network

The last stage in the life cycle of learning networks is also the most difficult – how to maintain momentum in the long term? The issues here include the need to review and evaluate where and how things are going and to design and implement improvements to the overall process. Essentially we are developing a cycle of review, plan, action which should enable sustaining and continuous improvement across the network.

Perhaps the most important element here is to make sure that some form of measurement takes place. If we wish to demonstrate progress or to show how much more needs to be learned we must have some measures in place to help – otherwise the whole process is just good intentions. As we saw earlier, measurement provides a powerful motivator to get firms involved in learning networks in the first place – for example, through benchmarking activities – and it can also provide the driver for continuous improvement.

Ideally what we are trying to do is to establish some form of 'policy deployment'. That is setting up some strategic objectives for the network in terms of learning targets and then breaking them down into learning projects and activities which can be measured. Periodically we can review the overall strategy and reset the goals and projects.

A good example of this is the oil and gas sector where learning network approach has been in use for some time. The original CRINE programme was aimed at learning across the sector to achieve an overall cost reduction of around 30%. But what happens five years down the line when this goal has at least partly been met? One option is, of course, to disband the network, but another is to reset the goals to something different and make use of the same learning structures and mechanisms. This is what the Oil and Gas Forum are doing, with a new set of targets around trying to increase the global share of this very lucrative market which UK firms hold.

Review and evaluation of this kind is important to the long-term development of learning networks. It is at least the responsibility of the network owners/facilitators but it would benefit from wider involvement of the membership – perhaps through a special workshop or a survey. The frameworks which we used earlier for design and operation can be brought into service to help provide a structure for the evaluation and review process. The following chart gives an outline checklist:

Review area	Possible performance measures	Measures and key questions	Maintain or else suggest improvement actions
Purpose of	Persistence of	Is it still	



network	<p>membership</p> <p>Perceived value for money</p> <p>Perceived continuing benefits</p> <p>Survey of user needs and priorities</p>	<p>appropriate to member's needs?</p> <p>Is it achieving that purpose?</p>	<p>Re-define purpose – set new targets</p>
Mechanisms and structure	<p>Participation rates</p> <p>Feedback from events</p> <p>Emergence of new mechanisms – perhaps set up by members themselves</p>	<p>Is design still appropriate?</p> <p>Are mechanisms the right ones?</p> <p>Are they frequent enough?</p>	<p>Modify – e.g. from 'star' to 'wheel'</p> <p>Revise and change – add new ones, delete unpopular or ineffective ones</p>
Learning resources	<p>Feedback from members</p> <p>Level of participation and engagement – e.g. discussion</p>	<p>Are these sufficient in breadth and depth of coverage?</p>	<p>Extend range of resources available –e.g. new providers, new knowledge sources, new topics, etc.</p>
<p>Operating mechanisms:</p> <p>Recruitment</p>	<p>Stability/growth of membership</p> <p>Turnover of members</p>	<p>Is the network still able to attract participants?</p>	
Information processing	<p>Frequency of contact</p> <p>Number of channels in use</p> <p>Actual use of different channels</p> <p>'Tracer' studies of information</p>	<p>Is the network communicating effectively and is there real exchange of information?</p> <p>Is the flow confined to formal and</p>	<p>Adapt/add mechanisms</p> <p>Explore new options such as enabled by ICT and the Web</p>



	flow Survey of user needs	codified information or is there a flow of tacit knowledge and experience sharing?	
Knowledge capture	Accumulation of competence in practice (= better performance by members) and/or in codified format (e.g. handbooks, databases, case studies, etc.)	Is the network learning or simply interacting and exchanging information? Is there a focus for the knowledge capture? Is there a resource /identifiable role for doing this? Are there clear mechanisms for doing this?	
Integration	Perceived sense of identity Frequency of interaction Degree of co-operation – e.g. via exchange visits, joint projects, etc.	Is there a sense of community developing? Analogy of groups and teams – is there a sense of shared purpose and commitment?	
Decision-making	Frequency and type of collective decisions require Degree of satisfaction amongst members with these	Are the mechanisms and arrangements appropriate for the kinds of decision which have to be taken? Are members happy with the arrangements?	
Conflict resolution	Incidence of conflicts	Are the procedures in	



		place sufficient to resolve emerging conflicts?	
Motivation	Members perceptions of challenges Scores against benchmark and other assessment frameworks	Is there still a sense of purpose and a commitment to learn? Is there a shared target toward which firms feel motivated to work? Are the facilitation and support mechanisms sufficient or do firms feel isolated in their learning activities?	
Risk/benefit sharing	Member satisfaction with arrangements Turnover of membership Incidence of problem issues	Are the arrangement in place suitable for ensuring that risks and benefits are shared by participating member in the network?	

The last point to remember here is that one outcome of the review process could be the decision to close the Network. If it has achieved its objectives and if members feel this no longer represents the way forward then it is important that there is closure. But it is often the case that once a specific target has been reached participating firms are keen to extend the approach and focus on new challenges.

7. Tools for enabling learning networks

We have already mentioned the importance of facilitation in enabling the design and operation of learning networks. But there are also many tools which can be used in the process to provide support at various stages. The following chart lists some examples:



Tool	Main purpose	Where it might help in setting up, running or sustaining networks
Benchmarking	Structured framework for comparison of performance and practice	Initial motivation Sustaining interest Setting targets for learning
Policy deployment	Translates high level strategic objectives into specific improvement or learning projects	Defining learning agendas Sustaining the process
Forecasting tools	Collection of techniques designed to explore emerging future issues	Motivation – helps focus on the need for change Sustaining by identifying new challenges
Value analysis	Identifies areas for improvement in product or service design	Sets up learning targets and agenda
Value stream mapping	Identifies improvement opportunities within or between firms and their operations	Sets up learning agenda
Creativity tools	Helps explore different options and opens up new ways of looking	Motivation Facilitating exchange of experiences Identification of new approaches and concepts

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