



SPE 100195

How Collaborative Environments Influence Culture and Behaviour

P. Williams, Williams Consulting Group

Copyright 2006, Society of Petroleum Engineers

This paper was prepared for presentation at the 2006 SPE Intelligent Energy Conference and Exhibition held in Amsterdam, The Netherlands, 11–13 April 2006.

This paper was selected for presentation by an SPE Program Committee following review of information contained in an abstract submitted by the author(s). Contents of the paper, as presented, have not been reviewed by the Society of Petroleum Engineers and are subject to correction by the author(s). The material, as presented, does not necessarily reflect any position of the Society of Petroleum Engineers, its officers, or members. Papers presented at SPE meetings are subject to publication review by Editorial Committees of the Society of Petroleum Engineers. Electronic reproduction, distribution, or storage of any part of this paper for commercial purposes without the written consent of the Society of Petroleum Engineers is prohibited. Permission to reproduce in print is restricted to an abstract of not more than 300 words; illustrations may not be copied. The abstract must contain conspicuous acknowledgment of where and by whom the paper was presented. Write Librarian, SPE, P.O. Box 833836, Richardson, TX 75083-3836, U.S.A., fax 01-972-952-9435.

Abstract

All companies are trying to produce organisational cultures that support their performance goals and growth aspirations.

This paper looks at how the increased connectivity afforded by the creation and use of collaborative environments can influence corporate culture by examining its impact on group dynamics and individual behaviours.

As well as looking at this inter-relationship, it also provides some advice on how to create these environments, including how to engage and enrol staff, and manage the transformation.

Finally a section is devoted to describing a Social Network Analysis tool that can benchmark and monitor the impact and effectiveness of collaboration.

What Is Culture

There are many definitions of group culture ranging from “the way the group goes about its business” to “the way its members think, act and feel”.

Getting a precise, neat and succinct description of any group culture is however somewhat difficult as it is concerned with a set of accepted values which may not be articulated let alone displayed, but one thing is sure – any person who wants to join, influence and succeed in the group must act in a way which supports these values. And anyone who opts to behave in a manner, fashion or style that threatens or counters these accepted values will either be ignored, ostracised, or expelled from the group.

Interestingly the actual values that exist in any group or organisation are often not the ones espoused, articulated and publicised by the company itself. Often the publicised core

values are those that the group would *like* to aspire to, but in practice fade into the background when faced with day-to-day commercial pressures, sometimes causing resentment from group members/staff.

This paper attempts to illustrate

- The importance of group culture to improving operational performance
- How culture drives and influences individual behaviour
- How the creation and use of collaborative environments impinges upon and affects the existing culture and behaviours

The Importance Of Culture

As mentioned earlier, what defines and underpins group culture is what the group itself values.

This could range from

- A sense of fairness
- Equality of opportunity
- Freedom and empowerment
- Pride in the company’s products/services
- Partnerships with suppliers
- Winning and winners!
- Increasing shareholder value

These values will in turn drive and compliment a set of beliefs such as

- People work better with less supervision
- Open communication systems improve trust
- Individual reward systems increase motivation
- Challenges and criticism are healthy

To sustain and reinforce these accepted values and beliefs individuals will be expected to have complimentary attitudes and behaviours, for example

- To share information
- Offer and give advice
- Continually acquire new skills
- Be proactively supportive and positive

This can be represented diagrammatically as a series of interlinking cogs, with the group's values being the largest, and hence driving the group's necessary and expected behaviours

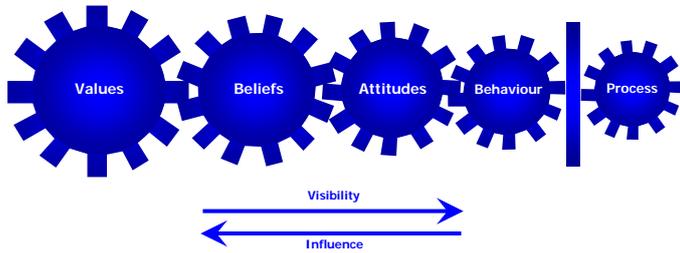


Fig 1 The Cogs Of Culture

What is also interesting is the fact that although values are the drivers of behaviour, by their very definition they are somewhat nebulous and hence not readily “on view”. This means that real values can be hidden by any group or individual, and more acceptable ones espoused.

So for example a group might value “winning at all costs”, believing that an autocratic management style would be best suited to supporting these values and hence condone or even encourage aggressive or dominant behaviours, possibly conflicting with an espoused value of “equality and fairness”. This group culture can be depicted as a “culture box” which is bounded by the accepted values, beliefs, attitudes and behaviours.



Fig 2 The Culture Box

If we examine this in more detail, and taking the offshore oil industry as an example, the offshore and onshore cultures would be misaligned as shown below:

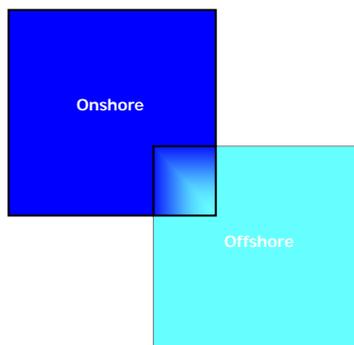


Fig 3 Culture Clash

The areas which do not overlap are where behavioural and attitudinal differences can lead to misunderstandings, often referred to as culture clash which can lead to

- Disharmony
- Disagreements
- Dysfunctionality
- And even defections

It is interesting that potential cultural misalignment is recognised by many companies when joining country cultures together, with considerable effort and resources often being expended in examining different behaviours, customs and mindsets. This can range from country visits to attending pre-assignment courses to learn about the history, customs and life styles. However in joining, for example, offshore and onshore cultures together via the formation of a collaborative environment no attention is paid to the effect cultural differences will have on relationships, team dynamics, and ultimately performance.

What has to be appreciated is the fact that there could be as big, if not greater cultural differences between people from the same country working in offshore and onshore environments than between individuals from different countries working together in the same geographical location.

The Effect Of Collaboration

Among the benefits of wider and deeper collaboration between remote groups are

- Access to scarce technical expertise
- Ability to create feelings of “one team”
- Sharing of learning, experiences and knowledge
- Collective decision making
- Remote monitoring of equipment
- Real time interventions to improve performance

However the potential problem of bringing two or more groups together is that you are joining separate and maybe different cultures which might have if not confusing, at least non-complimentary values and accepted behaviours.

So again, taking the offshore oil industry as an example, there are a number of groups that can be connected via collaborative environments, for example

- Offshore operations with onshore support
- Two or more offshore operations in different geographical locations, but with similar operating regimes, processes and technologies
- Onshore support with in-house technical or suppliers technical experts
- Offshore operators with terminal collection/export facilities

These groups, although ostensibly having worked together in the past in ensuring production targets are met or exceeded at minimum cost, by collaboration are put into “real time

contact”, sharing information, discussing issues, making interventions, and “living together”. Now they really are one group or team, and as such they have to have a shared, agreed and accepted new group culture in order to ensure they can work together cooperatively, harmoniously and effectively.

Onshore-Offshore Connection

So let’s look at two groups who might be connected together within a collaborative environment, the onshore support and offshore operations teams.

On the surface this would seem to be two groups that would evidently benefit from closer connectivity and collaboration with the following clear, unambiguous and attainable advantages

- Production optimisation
- Easy access to specialist support
- Remote monitoring of rotating machinery
- Joint planning meetings

So this would stimulate and encourage the creation and use of collaborative environments to link these two groups together. But let’s look at what each group might value.

Offshore

- Independence and autonomy
- Opportunity to be resourceful
- Sense of ownership
- Identifiable contribution
- Local recognition for adding value

Onshore

- Opportunity for reflection
- Ability to make interventions
- Conceptual discussions

Connecting these two communities could threaten some of these core values.

Offshore staff’s independence might be threatened by the interventions – albeit necessary, helpful and value adding – of onshore specialists, diluting both a sense of ownership and autonomy. Whilst on the other hand onshore staff’s opportunity for reflective debate might be limited by the increased connectivity, exposure and access afforded by the collaborative environment.

The varying values of each group will also have promoted different and accepted behaviours, with the natural reactivity of offshore staff promoting

- Quick decisive conversations
- Continuous interventions
- Informal teasing and banter

With the onshore staff tending to favour

- Debate and discussions
- Uninterrupted periods for reflection
- Opportunity and time to seek additional information

Whilst this might appear to be a stereotypical view of the expected behaviours of the two groups, it purely serves to illustrate that by joining any two groups together you run the risk of threatening their values, which could promote negativity, opposition and even hostile reactions.

In an attempt to retain these core values group members will often highlight the negative consequences of bringing the two groups together, whilst ignoring or marginalising any advantages or benefits.

Creating A Collaborative Culture

To successfully link two groups together necessitates creating a new culture from those that existed previously as distinct and separate entities. New values have to be agreed, leading to accepted, respected and necessary behaviours.

Only once these new values have been embedded and agreed as necessary to all parties will the collaborative environment be capable of generating the necessary supportive, positive and harmonious attitudes and behaviours.

Some of these “new values” might be

- Performance improvement
- Knowledge sharing
- Contribution acknowledgement

Whilst these new values replace the ones that previously bound the individual groups together, the “old” individual value sets do not disappear, but are simply relegated in the hierarchy of needs and become enablers rather than key value drivers.

So in our example, yes the offshore staff will gain satisfaction from some degree of local autonomy, but will feel comfortable sacrificing this for improvement in the wider group performance which has become a more prestigiously accepted value.

Similarly, whilst still needing periods of reflection, onshore staff are able to accept periodic interventions as necessary for the success of the group.

What is essential is for the sponsors of the new environment to be brutally honest, not only about both the intent and reasons for its creation, but also about longer term implications and consequences. If any perceived negative consequences such as staff reductions are not mentioned and accepted as possible outcomes they will be perceived as hidden agendas – and even though they are probably not the prime driver for collaboration, commitment to using the new facilities will be weakened.

Creating the new collaborative environment requires

- The engagement and enrolment of everyone
- The transformation to be managed effectively
- Appropriate leadership
- Agreed behavioural protocols
- Necessary training

So let's look briefly at each of these in turn

Engagement & Enrolment

In my experience this is undoubtedly the most important issue connected with creating any collaborative environment, but is often the one which is given the least attention.

This could be because the engagement and enrolment process is more concerned with people, whereas those charged with the task of designing and creating the collaborative environment are more familiar and comfortable with processes and technology. Often therefore engagement and enrolment activities are given cursory attention and more emphasis, effort and concern is directed towards extracting value from introducing new collaborative technology and changing business processes.

Whilst operational and commercial benefit will be derived from doing things differently, any new technology or process is dependent on the cooperative support of the people who will operate it for its successful implementation and usage.

Without this tacit, real and tangible support a collaborative programme could produce a room full of high-tech gadgets, under-utilised and rarely used, rather than an environment where people interact together in real time to make better decisions faster.

This engagement process cannot be rushed through. Any attempt to "sheep-dip" people will only promote concern, anxiety and encourage oppositional behaviour. All too often the architects and sponsors of collaborative environments spend months and some cases years debating and dwelling on the need and benefits that will accrue from the creation of a collaborative environment, and then expect the team members to see and accept these benefits via a two-hour workshop.

Moving too fast will only serve to deepen concerns and anxieties. Whilst some people might appear to agree, malicious compliance is liable to erupt into overt negativity unless the engagement process prepares different groups for fundamental, real and permanent switches in group values and allegiances.

This engagement process is best achieved by education and discussion rather than by a traditional roll-out programme.

It is also important that the people involved in leading this early enrolment are respected and trusted as objective and impartial rather than being perceived as salesmen of a new concept.

The engagement process can be divided into four phases, with each gradually moving from an education in the benefits of the concept, to active participation in the creation and use of the collaborative environment itself.

These can be represented diagrammatically as

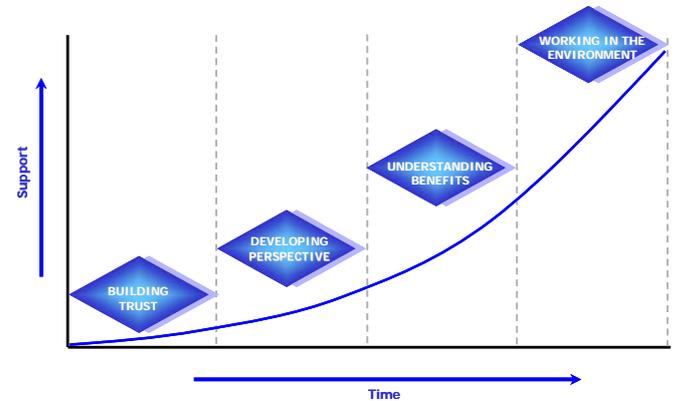


Fig 4 The Engagement & Enrolment Process

Clearly each phase is not entirely discrete, but what is important is to gain trust from people who will work in the environment, that the concept is well founded, encourage them to be prepared to consider a new perspective, understand and embed the wider benefits, and only then will they be prepared to actively participate in the programme of transformation. Missing out or paying lip service to any stage will result in resistance, suspicion and negativity.

On a practical level this engagement can be achieved by a combination of

- One-to-one briefings
- Facilitated group discussions
- Guest speaker programmes
- External visit programmes
- Distribution of appropriate literature

Managing The Transformation

General

The creation of a collaborative environment is in effect a major Transformation Programme, and will require the application of traditional change management principles.

What also has to be remembered is that the changes necessary to ensure that the environment is populated and used in a way that realises the potential commercial and operational benefits are people centric.

Individuals will have to forge new relationships, be ready to give and receive additional assistance and make interventions.

To accept and embrace these changes requires people to act and behave in a way which could make them feel initially uncomfortable and even vulnerable.

It would be all too easy to accept the new technology, but use it in a limited way that simply improves existing relationships rather than embracing it to develop new ones.

In the creation of a collaborative environment you are providing the opportunity for wider personal interaction which requires individuals to feel confident and comfortable that these associations will help support them in achieving their goals and not serve to expose their limitations.

What is therefore required is the provision of continual support and encouragement to use the environment, and in parallel provide personal coaching to develop appropriate behaviours.

Benefits

The potential benefits that come from the creation and use of a collaborative environment need to be clearly articulated.

For the changes to be accepted and supported there must be personal as well as corporate benefits.

The corporate benefits will probably be easier to identify and quantify, for example –

- Increases in plant availability and hence output
- Reduction in running costs
- Less travelling expenditure
- Quick access to support services and expertise

More difficult to quantify are the personal benefits, particularly as in any programme of change people inevitably focus initially on negative consequences before moving on to consider the attendant advantages.

Further, the benefits, although real can be somewhat tangential and therefore difficult to identify.

Here are a few examples of some potential personal benefits –

- Ability to learn quickly by observing processes, procedures and activities in real time
- Access to back-up support enabling objectives to be achieved quicker and more effectively
- As more and more operations create and use more collaborative environments people who have experience and a track record of working in them will undoubtedly make themselves more employable.

Natural Change

The creation of the environment should be seen as necessary progress rather than simply the imposition of new technology.

To achieve this the change should be introduced as modifications to the existing business processes and not as a separate and therefore optional addition.

If people see the changes as necessary and they are seen as an extension and improvement to current ways of working they are more likely to be accepted, integrated and supported.

Drivers and Retarders

Although there may well be powerful business and commercial drivers to support the creation of extra connectivity afforded by collaboration, there are some natural and genuine “retarders” that might on the surface seem relatively minor, but if not recognised and dealt with early on could act as derailleurs to the successful use of the new environment at a later date.

Among these retarders might be

- Feelings that extra connectivity will encourage more micro-management
- A negative reaction associated with “being watched”
- Negative associations with the use of cameras (for example speed cameras, CCTV surveillance)
- A sense of all their decisions being second guessed

What is required is to give people the time and opportunity to surface and discuss these concerns so they can put them in perspective.

Resistance

In any change programme people will naturally initially concentrate on the attendant disadvantages of extra connectivity.

Do not marginalise these concerns or they will go subsurface and act as hand grenades to derail the process in the future.

Early negativity is a protection mechanism to evaluate the consequences of any potential threat.

Indeed people who exhibit early negativity can, once it subsides, become the strongest advocates, supporters and evangelists of the new ways of working.

Planning

Ensure that the introduction of the collaborative environment is well planned with adequate time being allocated to the enrolment and engagement of staff.

It is also critical to ensure that the plan is assigned and implemented by internal staff.

Due to high work loads all too often responsibility for plan development is externally resourced, which weakens local ownership.

Appropriate Leadership

General

More collaboration, with the opportunity to interact with more people, to input into more discussions and to affect and influence more decisions, will inevitably mean that the role played by the appointed leader will need to be re-evaluated and, if appropriate, change.

Adaptive Style

Collaborative environments by their very nature are empowering, encouraging people to use their own initiative, initiate conversations, seek and give advice, and make joint decisions.

So what is required from the Manager is an adaptive leadership style appropriate for different situations, sometimes observing to ensure compliance with corporate processes and procedures, at other times providing coaching advice and maybe on other occasions giving direction and making decisions.

Targets & Goals

What is essential in the collaborative environment is for the leader to clearly articulate necessary and achievable local goals, and probably as importantly, if not more so, the wider targets that their team members will have the opportunity to input into and influence afforded by the extra connectivity.

Highlighting and tracking broader targets which the team can and should input into will encourage wider collaboration.

Acknowledging Contribution

An intent of collaboration is to ensure that those who need to input into decision making can do so – having both the opportunity and the inclination (e.g. by feeling included).

But this multiple input into activities and decisions can mean that it becomes more difficult to identify and hence articulate contributions.

An important role of the Leader is therefore to ensure contributions from his own team, no matter how relatively small, are recognised and acknowledged.

This “positive reinforcement” will continue to encourage people to contribute and participate in wider collaboration in the knowledge that what they do will not go unnoticed!

Coaching & Mentoring

Although the provision of individual personal coaching, counselling and mentoring is standard fair for leaders and managers in any progressive organisation, this takes on even more significance and importance in a collaborative environment where

- The extra freedom provided by additional connectivity means individuals need guidance on how to use it, who can be contacted, how to behave, what to report, etc.
- Responsibility and reporting boundaries become somewhat blurred.

External Perspective

A collaborative environment opens up new opportunities for involving more people, altering processes and changing business systems.

To ensure maximum advantage is taken of these potential opportunities it is essential that lessons and ideas are obtained from other operations and organisations.

One of the main responsibilities of the leadership is to provide an infeed into this external perspective by

- Arranging visits to other companies
- Encouraging visits from other organisations with wider experience in collaboration
- Reviewing the media for new ideas and concepts

Agreed Behavioural Protocols

General

Creating and living in a collaborative environment means forming new relationships, interacting with new groups of people, and often being at the centre of an operation with access to information and subject to possible personal interventions on a continual basis.

This high level of potential activity can and should become an exciting, vibrant and energising place to work, where everyone feels an important part of an enlarged team.

It does however mean that the increased potential for personal connectivity, collaboration and association means that everyone has to consider how and when to make an intervention.

The possibility for interpersonal or group conflict is increased, as albeit unintentionally someone might intervene at the wrong time, or in a manner which is perceived as inappropriate.

So in a collaborative environment everyone has to be conscious of how their behaviour, attitudes and style will be received by others, and it will accentuate and highlight the need to be continually sensitive, courteous and empathetic to how their interventions are perceived and received.

Agreeing on expected and accepted individual behaviours is essential to ensure the smooth and efficient operation of any collaborative environment.

This would include both living within one geographically defined space (be it a control room, a support centre, etc.) and between areas/groups brought together via the collaborative environment (e.g. onshore operations and offshore support groups).

Clearly some of the behavioural protocols will be the same for each group, particularly regarding hygiene, noise levels, breakout rooms, etc. but some will be specific to joining two groups together more concerned with intervention policy and use of the technology.

So taking each in turn

Room Etiquette

It is important, if not imperative, to agree the etiquette for working and living within the collaborative environment.

This should extend to

- Use of mobile phones
- Music!
- Drinking/eating policy
- Entertaining visitors
- Etc.

Although the precise accepted etiquette will vary from room to room depending upon the local and country culture, the three most important things are

- To agree the behavioural protocols by joint discussion
- Display them within the environment
- Review them on a regular basis (both to gauge compliance, suitability and if necessary make amendments)

Linkage Between Remote Locations

The main issues here are visual and audio connectivity and intervention policy.

Visual & Audio Connectivity

As has been mentioned earlier, how remote sites are connected together is important.

Whilst the objective is to create a “one team” feeling by the use of audio and visual linkage, the sudden installation of cameras and microphones can provoke feelings of disturbance, surveillance and intrusion.

What people sometimes find difficult to accept is that all the technology is doing is creating a large open plan office environment, with all the traditional attendant advantages associated with being able to see who is available to be engaged in a conversation.

This extra connectivity therefore has to be introduced gradually, and in a way that gets people used to the additional capability.

Its introduction should be discussed and agreed with all parties, and could include some or any of the following:

- Having the audio connection permanently off, with it only being activated when needed for a specific conversation
- A light signal indicating when there is audio connection
- Visual connectivity on a wide angle room to room basis, with individual close-ups being activated on an as-required basis

Rest Periods

Collaborative environments can be busy places with lots of interactions, conversations and discussions.

Although this can produce a culture that keeps people engaged and interested in their activities, and therefore make time pass quickly, it can also tend to sap energy so people may need to take short re-energising rest breaks.

These breaks need to be arranged so there is ample cover for the person “resting”, otherwise if the person feels they might not be available to input into a particularly important decision, this will induce an anxiety that will mean their rest period is less effective.

These rest periods should also be taken out of view of the collaborative environment, again to ensure there is no disturbance.

Use Of Technology

As far as people are concerned, what is of paramount importance is to ensure that whatever equipment is installed is relatively easy to operate.

What will cause any technology to become unused and redundant is if it takes too much time, effort and “expertise” to get it operational.

Any visual, audio or data connection should be able to be activated by following a simple menu – and if it takes more than three pushes of a button, or three clicks of a switch, the chances are it will fall into disuse quite quickly!

Visitors

Although briefly mentioned under behavioural protocols, it is probably worth dealing with the issue of “visitors to the environment” in a little more detail.

The first thing that is worth saying is that any “open” environment is by definition, and to some extent intent, easily accessible and seemingly welcoming.

They are however also places where people and groups are interacting, working and making important decisions, and therefore unnecessary interjections, interruptions and disturbances caused by too many visitors could be damaging.

It might therefore be worth agreeing a visitors charter which could contain

- When visits should take place
- How they should be introduced
- Who can they talk to
- Should there be a maximum number in any one period

Use Of Team Coach

Given the novelty of the new environment and hence the potential for misunderstandings and unintentional behaviours and attitudes from some individuals, it might be worth appointing a "Team Coach" (this could be an internal person carrying it out as part of their duties, or an external resource coming in on a periodic basis).

This coach would observe interactions, personal behaviours, team dynamics and relationships and provide individual and group feedback to provoke personal and group reflections.

People selected for this role have to possess acutely developed interpersonal joining, observing and coaching skills.

Necessary Training

General

The effective and efficient use of any collaborative environment is wholly dependent upon people receiving the correct volume and blend of technical, managerial and behavioural training.

This training should not be confined to the provision of simply classroom based education, but should also contain a tailored combination of coaching, reading material, manuals, and scenario based training.

Type Of Training

Technical

The technical training should be designed to ensure individuals feel comfortable using and living with the new technology.

Behavioural

Here it is essential that people understand how collaboration and additional connectivity between remote groups can impinge upon and affect relationships and team dynamics.

Managerial

Managing in a collaborative environment requires the adoption of a coaching/leadership style that can set targets,

goals and boundaries as well as defining roles and providing personal feedback and motivation.

Delivery Mechanisms

Classroom Based

These should be designed as facilitated discussions providing essential background information on collaborative environments in general as well as an introduction to the technology they use, and their effect on business processes and interpersonal relationships.

Reading Material

The classroom based educational sessions should be supplemented with pre and post reading material/manuals to reinforce learnings as well as providing more details and background to the benefits and usage of collaboration.

Coaching

Individuals should be provided with periodic and regular feedback on how they are working and interacting within the environment, and also given the opportunity to discuss their own personal issues and concerns.

This coaching might be given by a combination of line managers and external support to provide different perspectives and advice.

Scenario Based Training

Probably the most powerful method of reinforcing learnings and inculcating the right behaviours and personal interactions is by the development and delivery of scenario based training packages.

Here individuals and groups can become familiar with working in a collaborative environment by participating in a number of different operational situations and learning from them by subsequent facilitated group discussions.

Social Network Analysis Tool

The aim and purpose of creating a collaborative environment is to promote and encourage more effective, efficient and value-adding connections between both individuals and groups. It is therefore necessary and important to monitor and measure how the additional connectivity is influencing and impacting personal interactions.

One way of examining this is via Social Network Analysis (SNA). SNA is an innovative way of looking at the actual paths of communication that exist between people within an organisation to determine how effective they are and develop improvement plans where appropriate. Traditional organigrams illustrate hierarchical relationships between people within an organisation, whereas SNA shows the actual working relationships that exist, and the flow of information through informal channels. A study involves the mapping and measuring of these normally invisible relationships between people as shown in the diagram below.

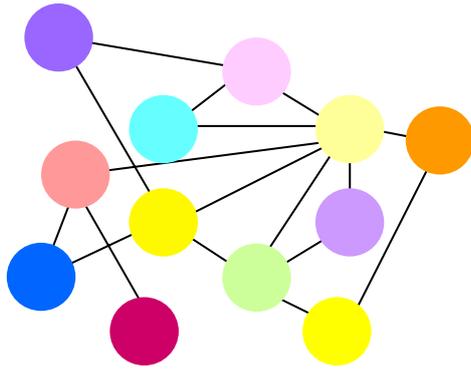


Fig 5 Social Network Analysis Diagram

In summary Social Network Analysis maps show

- Who interacts with whom
- The value placed on the interaction by each party
- The reason for the interaction as perceived by each party
- The strength of the interaction
- The style of the interaction

Previous studies have shown there is usually a significant volume of interactions within an organisation that are

- Non value adding – these are interactions that are not valued by either party, where they have become transactional or redundant but neither party has the opportunity or feels obliged to cancel them
- Undervalued - where there is a mis-match in the importance placed on the interaction by each party – i.e. one party sees it as “critical” and the other as “adding no value”
- Misaligned – where two parties are interacting for different reasons

The output from a study can show

- The key communication paths with the organisation
- The strength of internal customer/supplier relationships
- Teamworking effectiveness
- Key influencers and influencing groups in the organisation
- Group cohesion
- Weak relationships
- Isolated groups
- How energising the interactions are

And enable the formulation and implementation of improvement plans to achieve greater efficiency and hence improved commercial performance within the organisation

The installation of a collaborative environment provides a unique opportunity to measure and assess the effectiveness of the extra connectivity afforded by collaboration by carrying

out a Social Network Analysis study both before and after collaboration.

The SNA will enable the Asset to

- Measure and assess the effectiveness of collaboration
- Improve operational efficiency by the elimination of non-value-adding interactions
- Increase productive interactions by relocation of groups
- Provide information feed into new building layouts
- Develop robust KPI's

A simple confidential questionnaire is circulated to everyone participating in the study to collect information on

- Who they interact with
- At what frequency
- For what reason
- How important the interaction is to them
- The style of the interaction

Completed questionnaires are returned directly to the team carrying out the analysis to ensure confidentiality, and once the SNA maps have been formulated discussions can be held with a cross-section of staff to validate the findings and discuss issues arising, with relevant learnings being communicated to the appropriate teams to assist in formulating improvement plans and evaluating the influence and importance of collaborative environments.

After a period of collaboration you would expect to see

- Non value adding (or wasted) interactions diminish and hence increased efficiency
- Interactions valued by both parties to increase meaning more effective discussions
- Increased agreement on the reason for the interaction resulting in greater effectiveness
- Clearer paths of communication

Some further examples of SNA maps are shown in figures 6 and 7 below

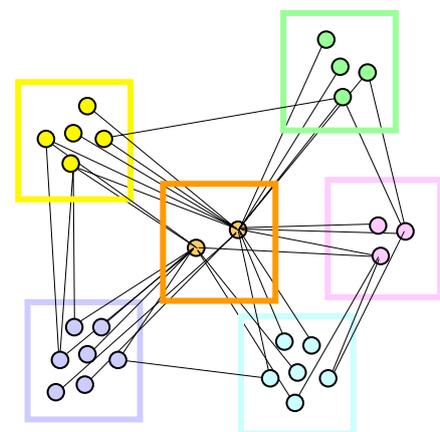


Fig 6 Map showing the communication paths between individual departments and the centre, and with other departments

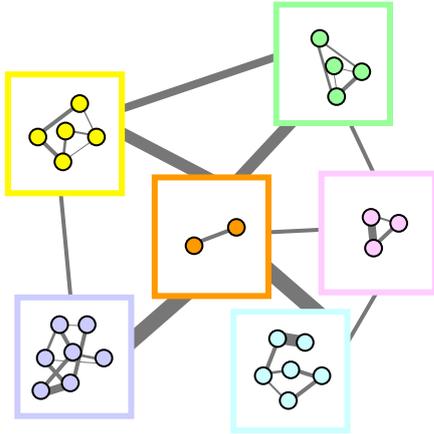


Fig 7 The width of the line indicates the strength of the agreed interactions between departments

Summary

So it is clearly evident that the continued development, implementation and use of collaborative environments will bring significant operational and commercial advantages to a wide ambit of industrial organisations. However, to ensure these potential benefits are realised it is essential to recognise and deal with cultural differences and variations which, if not addressed, will lead to inevitable interpersonal friction and possibly dysfunctional behaviours.

In conclusion as much, if not more, emphasis and attention needs to be directed towards dealing with these people issues connected with collaboration as dealing with the technology being used or the processes that might be affected or modified.

It is not the technology or the processes that will collaborate to produce improvements, but the *people* that work and live within them.

Acknowledgement

The author would like to acknowledge the support and sponsorship provided by BP plc, and for permission to publish this paper.