



**Communication,  
collaboration and  
coordination**

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# CONTENTS

## **Introduction 1**

### **1 How well do we communicate, collaborate and coordinate now? 3**

### **2 The Agile approach 7**

2.1. Scrum 11

2.2. Kanban 11

2.3. XP 12

### **3 The guiding principles 13**

3.1. Communication 14

3.2. Collaboration 21

3.3. Coordination 32

### **4 Practical ways for better communication, collaboration and coordination 38**

4.1. One-to-one 38

4.2. Teams 58

4.3. Crowds 67

### **5 Conclusion 82**

### **Bibliography 85**



# INTRODUCTION

Human beings are social. We do things together quite naturally. In fact, we need to do things together to be happy. Studies have shown that human beings spend time socialising even when very tired. We have to reach a state close to exhaustion before we give up on socialising and just sleep instead. However, even with our natural behaviours, in different groups and settings, the overall culture and context has bearing on how we rub along together (or not).

Throughout time, humans have created structures to facilitate social order and well-being. From Amazonian tribes, to your favourite sports team or even to the United States of America, every group has processes, policies and structures to effectively operate – even if they're explicit or not. Winston Churchill famously said "It has been said that democracy is the worst form of government except all the others that have been tried." Whatever you think of democracy there are clear principles which makes it distinct to other forms of government such as communism. But, even when you consider the broad term of democracy, there are many variants of how democracy actually works. The United States system of government is quite different to the United Kingdom's.

But this isn't about how countries govern themselves. Every type of social organisation makes decisions as to how they bring different people together to effectively operate. In the book *No Man's Land*, Doug Tatum describes a firm's culture is defined by a clear and successful pattern of decision making.

Traditionally, hierarchy has dominated the way companies structure themselves. However, the internet has created an environment of openness that previously just wasn't possible, and the influences of Agile software development and Lean processes has given life to new philosophies such as holacracy which attempts to flatten the organisation. Rather than getting hung up on the labels and terms, it is important for us to examine the underlying concepts and needs of the environment.

This session is about three fundamentals of human interaction: communication, collaboration and coordination. Communication is formed of the myriad signals we give to one another that permit us to work together. Collaboration is working together jointly, pooling our intellectual and physical resources to create the end result. Coordination involves bringing differing parts or people together for effective working.

If human beings are intensely social, we have other instincts as well. We are also competitive and individualistic, and this conflicts with collaboration. Many organisations set up environments which militate against the very cooperation they need – competition between teams for resources, or individuals for promotion and respect, for example, can kill meaningful collaboration.

Making the most of these three fundamental interactions is not only about how we use them as individuals, but about how we use them in small groups – normally our teams – and how we use them in the wider context of our organisation's environment. This session explores the importance of communication, collaboration and coordination in development environments and a number of tools, practices and methods for ensuring we use them effectively and minimise failures.

By the end of this session, students will be able to:

1. Appreciate the importance of communication, collaboration and coordination in product and software development and examine common failures and their impact.
2. Compare the Agile approach and the practices emphasised in key methods such as Scrum, Kanban and XP.
3. Appraise the general principles of communication and the appropriateness of differing methods.
4. Identify the barriers that block collaboration and evaluate how to enable collaboration.
5. Critique differing approaches to coordination and judge where each is most appropriate.
6. Understand and apply the most effective tools to assist in improving communication, collaboration and cooperation for your organisation. This includes designing, implementing and evaluating a tailored structure and set of practices.

# 1 HOW WELL DO WE COMMUNICATE, COLLABORATE AND COORDINATE NOW?

The number one reason for employee dissatisfaction, according to a white paper by Dr. Jan Stringer, is a lack of communication – in both directions. That is, employees are too nervous of retribution to speak honestly to their employers, while bosses fail to seek the opinions of others or to communicate decisions or plans regularly.

A 2011 survey by Fierce Inc. of 1,400 employees found that 86% of respondents blamed workplace failures on a lack of collaboration or ineffective communication. The same survey found that 90% of respondents believed that decision makers should seek out other opinions before making a final decision, but approximately 40% felt that leaders and decision makers consistently failed to do so.

Employees everywhere lament, ‘nobody told us!’ or ‘no-one ever asks us!’. You’ve probably experienced the frustration of this yourself. It manifests in all sorts of ways: knowing a big takeover is being discussed behind closed doors, but not knowing whether it means your job could vanish; happily accepting a supplier’s promises that everything is on track and then suddenly finding out they’ll be six weeks late; agreeing to create a joint presentation only to discover that what your colleague meant was that you do all the work and he takes all the credit...

Misunderstandings and failures in collaboration can often be highly emotionally charged; they can also be very damaging. Take the (probably apocryphal) story of the army general in World War 1, who radioed for help: Send reinforcements. We’re going to advance. Because radio messages were transferred from operator to operator, by the time it reached HQ the message was: Send three and fourpence. We’re going to a dance.

This comic tale of a communication failure achieves tragic status in the ‘Charge of the Light Brigade’ during the Crimean War. For those who don’t know the story, the commanding officer sent an order for the Light Brigade to pursue a retreating battery. At some point in the chain of command, the order was altered to a frontal attack on heavy artillery. Rather than question the order and seek clarification (rarely encouraged in the 19th century army), the brigade obeyed. The resulting massacre (278 casualties out of 607 men) was an indictment of poor communications. Tennyson transformed stupidity into nobility in his famous poem:

**“Theirs not to make reply,  
Theirs not to reason why,  
Theirs but to do and die:”**



Figure 1. Charge of the Light Cavalry Brigade, 1854, under Major General the Earl of Cardigan, by William Simpson

Fortunately, communication and collaboration failures in software development rarely result in mass killings, but they can be highly damaging to the business.

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**CASE STUDY:****Multiple communication, collaboration and coordination failures between Oracle and**

**MONTCLAIR STATE  
UNIVERSITY**

Montclair University wished to replace a series of legacy systems with a new common enterprise

platform. This huge system was intended to 'improve planning and budgeting capabilities, maintain better administrative controls... improve services to students by making course work, financial aid, and other information more readily available and accessible, improve its human resource systems processing and reporting, improve reporting of information for financial and other decision making, and have a fully enabled web solution'.

The university selected Oracle as its partner to provide software, support and implementation with a contract worth approximately \$20 million. The deal – unfortunately – went spectacularly wrong. After two years and a great deal of money – little usable software was delivered, with a predicted project overspend of over \$10 million.

The University ended up suing, complaining that Oracle had missed critical deadlines, had failed to deliver the software required, and that the software they did deliver did not work. The most damning quotes in the lawsuit were those about failed communication.

The suit claimed that Oracle failed to provide accurate and timely project status reports. Those it did provide were deliberately made obscure, changing the colour code for 'risk' for example, in order to make the project appear less risky at first glance. Oracle even refused to provide data, including an internal audit, instead assuring the University that the project was on track, even when it wasn't.

Other major failures were about the details of collaboration, including a high turnover of staff; inexperienced staff who were not aware of the methodologies; part-time off-shore staff who confused the project with other projects they were working on for other clients.

In response, Oracle immediately counter-sued. Its response was that 'Instead of cooperating with Oracle and resolving issues through discussions and collaboration, MSU's project leadership, motivated by their own agenda and fearful of being blamed for delays, escalated manageable differences into major disputes. At critical points in the project, MSU's leadership refused to work with Oracle and rebuffed multiple attempts to resolve the issues and complete the project.'

Taken together the two statements read as an exemplar of collaborative failure. In some ways that might be inevitable in two parties that find a law court the only place to settle their disputes. Yet the terms of this disagreement make it clear just how completely a working relationship can break down – in spite of good process, highly respected organisations with intelligent employees and a project plan that seemed ambitious but achievable.

A complicated ERP project, with so many different parts to integrate and coordinate, necessitates close collaboration and good communication. When this breaks down, failure is almost inevitable. And the failure was costly for both sides. After a two-year legal battle, both sides reached a settlement. Although the terms were not released, nobody can have really been happy. After all, Montclair still needed to finish its system and Oracle had invested a great deal in the work, let alone legal costs. The only real winners were the lawyers.

The analyst Michael Krigsman commented that 'faulty communication and mismatched expectations are usually to blame'. It's a modern-day parable of the cost of failing to communicate or collaborate effectively.

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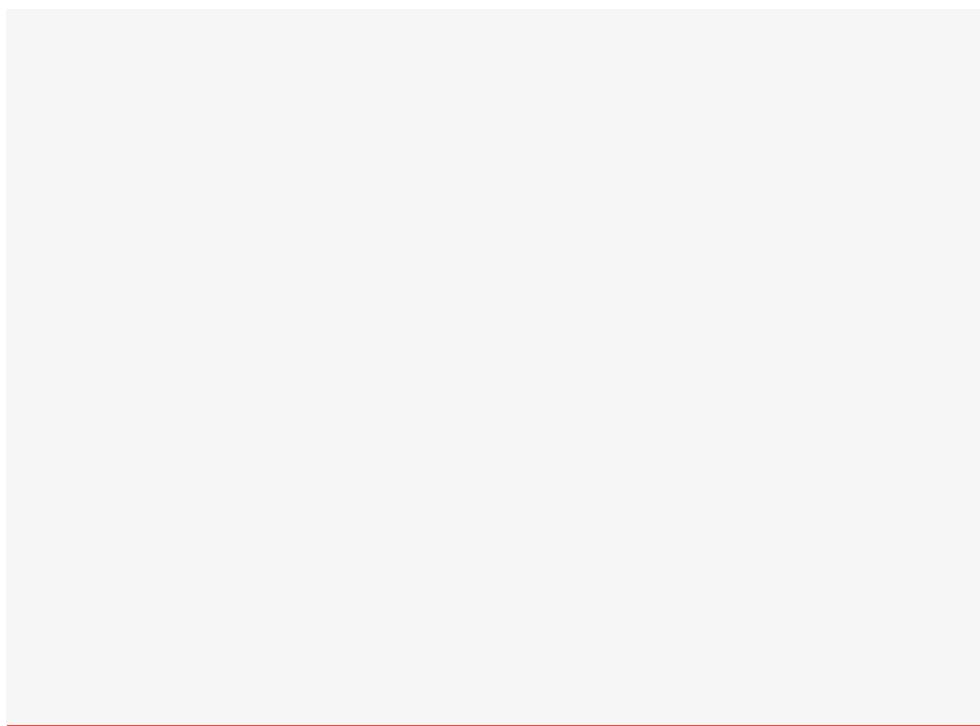
**Activity 1:** **What do errors in communication, collaboration and coordination cost you**

This is a reflective activity best done on your own, with input from other colleagues. You might then find it interesting to present the results at your next team meeting and briefly discuss them.

If your team holds retrospectives, then look through the records of these – the lists of issues and the actions selected. How many of the problems stemmed from communication, collaboration or coordination problems?

If you don't hold retrospectives, see if you can look through a review for a past project or simply talk to some of the people involved. While the problems are often presented as technical in nature, you may be surprised when you dig below the surface how many are really due to two teams not talking or not working together.

In particular look out for delays caused by teams or individuals not being coordinated on the same schedule or having different priorities. It can be interesting to ask what might have happened if these delays had not occurred and even to calculate the actual and/or opportunity cost caused by these delays.



## 2

## THE AGILE APPROACH

We mentioned in our Teams session that highly creative work or problems that require a great deal of fast learning usually require more than one person to achieve a successful result.

People do not always have to collaborate. A traditional ‘waterfall’ style process has very little collaboration between differing roles and phases, for example. It does require a great deal of coordination of the differing outputs of various roles. Because there are so many hand-offs between roles, communication is also essential. Often the coordination is made a visible part of the process – in stage gates, for example – while the communication may also be formalised as schedules, documentation and project plans. Lyssa Adkins, in her book *Coaching Agile Teams*, distinguishes neatly between the two:

“Collaboration yields that old adage: The whole is greater than the sum of the individual parts. Cooperation yields the sum of the parts.”



Figure 2. The whole is greater than the sum of the parts

Software, most would claim, is a creative task with little understood at the outset. It is filled with uncertainty and new learning as we craft solutions to problems. It often involves numerous specialists, disciplines and a variety of stakeholders. Its very nature, you might say, is collaborative.

“A fruitful way to think about software development is to consider it as a cooperative game of invention and communication.”

**Gojko Adzic**

We collaborate in software all the time – not just in design sessions on a whiteboard or in brainstorms about features, but when we’re estimating how long a feature will take, debating priorities, planning a release schedule or breaking work down. Because a software product is much more than lines of code, we need the differing views and expertise of a range of people – customers, architects, developers, interaction designers, testers – to deliver it.

The Agile Manifesto recognises that collaboration, communication and coordination lie at the heart of successful delivery. As Craig Larman writes in his book Agile and Iterative Development, ‘If the agile Prime Directive is embrace change, a close second is embrace communication and feedback.’



Figure 3. Two values from the Agile Manifesto

The Manifesto urges ‘Individuals and interactions over processes and tools’ and ‘customer collaboration over contract negotiation’. Among its principles are several pieces of advice as to how this can be achieved. The two most notable are that ‘business people and developers must work together daily’ and that face-to-face conversation is ‘the most efficient and effective way of conveying information’.

Agile takes a broad definition of collaboration – one which includes the customer and business stakeholders, not just the internal workings of a development team. It does not mandate any specific recipes for how this collaboration should occur, however. The principle is all very well – we should collaborate and communicate, but like any well-meaning ideal, doing so successfully is not as easy as stating it.

The many Agile methods have come up with their own solutions, creating a variety of formal practices designed to foster or ensure collaboration, communication and coordination. We’ll go on to explore the principles that lie behind these in the next section.

## **Activity 2: The design game**

This game can be played with any number of groups of 3. Each round lasts about 5 minutes and you should play a minimum of 3 rounds and allow time for discussion.

### **Preparation:**

You will need a set of children's building blocks. Prepare a list of simple objects beforehand and write each object on a separate card: house, car, cow, our office, park, dinosaur, etc. If you are playing the game for an extended number of rounds you might want to try more complex or abstract words to see how this challenges players to collaborate more together as they try to find a shared vision.

### **Roles:**

There are 3 roles:

**Vertical Engineer** – can place pieces in a vertical position only

**Horizontal Engineer** – can place pieces in a horizontal position only

**Product Owner** – can make changes to the pieces laid by the 2 engineers; that is can move the position of blocks, but cannot change a vertical to a horizontal or vice versa.

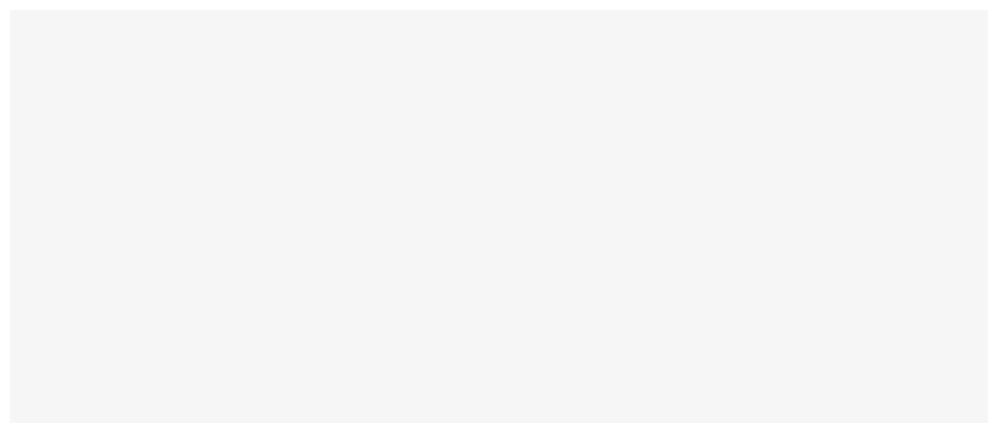
### **How to play:**

The game is played in silence – the only communication occurs through actions.

The Product Owner should turn over a card. When all 3 roles have read the word, they begin trying to build it 1 piece at a time.

Each role makes a move in turn: the Vertical Engineer places 1 or 2 pieces vertically, then Horizontal Engineer places 1 or 2 pieces horizontally and then Product Owner adjusts the pieces. They continue taking turns until the Product Owner is satisfied with the final result and halts the round. The number of 'turns' required to make the object is then recorded.

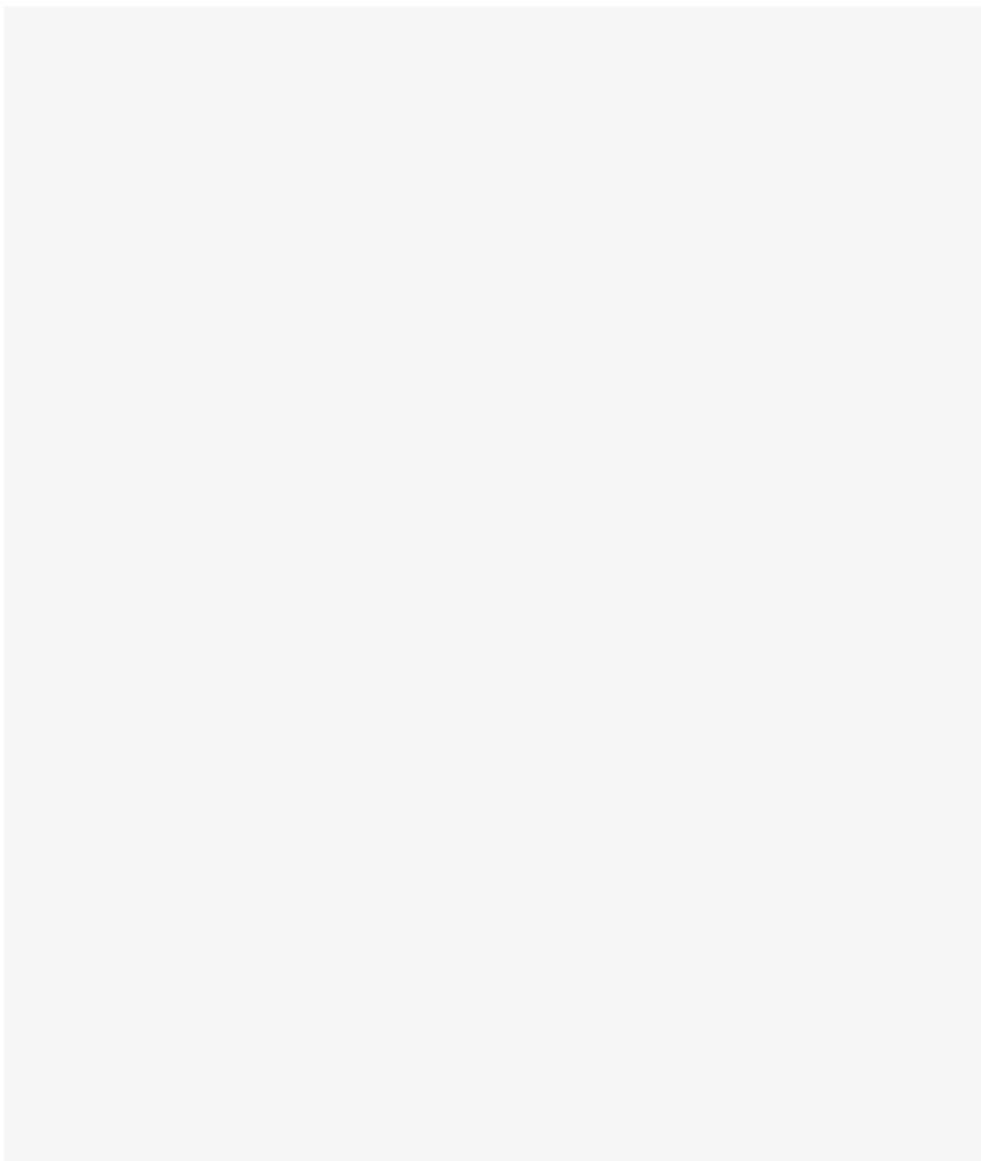
The next round everyone swaps roles and plays again. Play at least 3 rounds so that everyone tries each role.



**Discussion:**

The players should then have a chance to discuss what they learned during the game, including how they collaborated towards a finished design without being able to communicate to one another or to form a 'shared vision' of how the object should look. Only the Product Owner could change the pieces or finish the object and so could impose her view on the others to a greater extent. Explore how this felt and also the frustrations of having a rigid 'specialisation' as a role. Were there any objects that took more turns to complete than others? If so, was this because they were difficult or because the Product Owner had a specific concept? Were there times when the engineers anticipated one another's moves? Were there times when an engineer wished to place no blocks, or when a Product Owner wished to remove one?

Discuss how any of the frustrations or pleasures of the game connect to software development and to your team in particular.

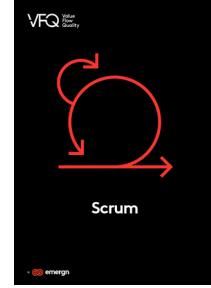


## 2.1. Scrum

"Collaboration and Cooperation: 81% of respondents reported Scrum as better or much better [than their previous method]."

**Larman and Vodde** – Scaling Lean & Agile Development

Scrum co-ordinates the team with a regular rhythm of meetings which provide pre-arranged opportunities for collaboration and communication.



The Daily Scrum, as a short meeting focused on what has just happened and what is about to happen, keeps the team up to date with each other's work and any potential blockers, helping to nip problems in the bud. By keeping it to 15 minutes with 'pre-set' questions and topics, the cost in time is kept to a minimum.

The same pattern can be seen in the other Scrum meetings: the Sprint Planning Meeting is a formal occasion for collaboration where the team (and customer representative) plan, estimate and select stories for the team to work on. The Sprint Review serves the same collaborative purpose with the team gaining feedback on their work.

Finally, the Retrospective is an opportunity for the team to improve how they communicate, collaborate and coordinate, since it is intended to allow them to focus, not on the task, but on how they work together. When done well (which is by no means always the case) this is a really important opportunity to keep improving.

## 2.2. Kanban

"Kanban facilitates the emergence of a highly collaborative, high-trust, highly-empowered, continuously improving organization."

David Anderson – Kanban

Kanban begins with whatever process is currently in place. That means, there may be no collaborative team to begin with. However, through flow improvements, Kanban offers tools to support coordination and then make collaboration easier.



The key flow improvements are to make work visible, limit the work in progress (WIP) so that individuals (and/or teams) can identify bottlenecks and decide on the necessary action. Sometimes this means swarming to overcome a problem (explicitly collaborative); at other times, it may simply mean coordinating efforts and work better in order to manage the bottleneck.

The Operations Review Meeting – Kanban’s mandated, regular meeting for the department, business unit or selection of teams – is an explicit acknowledgement of the importance of coordination. It is not itself collaborative, but it can offer opportunities for collaboration between teams and different stakeholders alongside the sharing of information.

Just as making work visible is a prerequisite of improving the team’s coordination in Kanban, so using data is a prerequisite for making this Operations Review Meeting effective. In both cases, Kanban uses high quality, data-driven communication to power improvements in coordination and collaboration.

## 2.3. XP

Like Scrum, XP also uses a rhythm to act as a ‘heartbeat’ for each day and each iteration, which enables communication and coordination at a low cost. In XP the stand-up and pairing conversations provide the daily rhythm, supplemented by pre-planning, planning game and retrospective over the iteration.

XP is famous for a very specific form of collaboration – pair programming, in which two developers sit side-by-side with one ‘driving’ as they work. While not maintained for the entire day, this forms a distinctive part of XP and can include non-development activities, such as planning or reporting.

An environment that encourages information sharing as part of communication, a co-located customer representative and an attention to the enablers of collaboration are also part of the XP ethos.

# 3

## THE GUIDING PRINCIPLES

Whether consciously following Agile processes or not, most organisations know that people need to work together. They know that having teams or individuals duplicating one another's efforts or pulling in opposing directions is wasteful and counter-productive. They often expend a great deal of time, money and effort trying to solve this. They might have an internal communications department; newsletters; company away days; meeting facilitators; team-working training and personal coaching on persuasion and influence... In terms of working processes, there are probably formal meetings, reports, documentation, reviews and approval gates. And yet, despite all the attention paid to it, we often find ourselves with just as many collaboration or communication problems as before.

In many ways, the challenge of trying to do better is only growing. As companies become larger, geographically distributed or encompass multiple suppliers and customers, we make it more difficult to communicate, collaborate and coordinate naturally and informally. Yet even in a small, co-located team, there are numerous opportunities for misunderstandings and failures to work together. Two people who see each other every day can still manage to double-book events, forget who was doing what, or get into an argument over a comment that was intended to be innocuous. This won't surprise anyone who has been in a long-term relationship.

Any understanding of why we find communication, collaboration and coordination so hard requires thinking about the central paradox that we referred to earlier – we have conflicting urges. People want to communicate, but also to hoard knowledge; to work together, but also to ensure everyone knows 'I' am the most important person in the team; to coordinate, only to discover conflicting goals.

In the following pages, while we'll look at many formal practices that might help, we always stress that they can only help when you look at the environment and culture within which they work. In this section we will examine the barriers and enablers to communicating and collaborating better.

Some things are almost axiomatic: it's easier to work collaboratively and communicate with those you know than with those you don't, with those who are in the same country compared to those with whom you do not share a language or culture, with those in the same room than with those on a different floor or different location. Since creating the 'ideal' environment is not always possible, we will also look at when and where it is most important to invest the effort.

### 3.1. Communication

"The single biggest problem in communication is the illusion that it has taken place."

**George Bernard Shaw**

In the early 1980s, email was in its infancy. There was a growing recognition that the networks built to allow computers to communicate could also permit people to communicate. APRANET, USENET and others were burgeoning. But there was something missing from this new style of communication. In 1982, Scott E. Fahlman at Carnegie Mellon University posted the suggestion that :-) should be used to mark jokes, while :-( should be used to signify when something was serious.

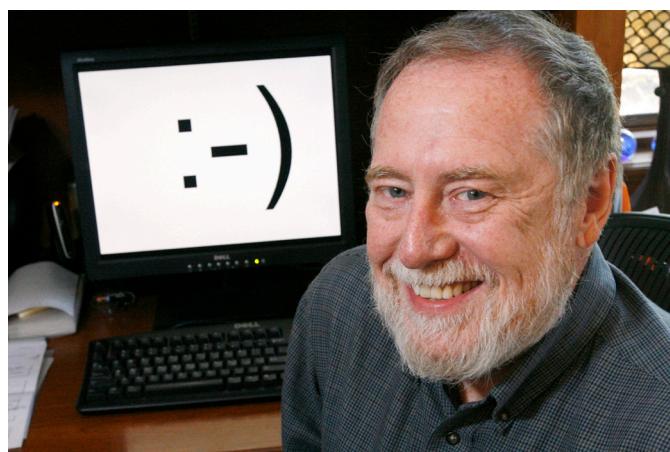


Figure 4. Three keystrokes – a colon followed by a hyphen and a parenthesis – were first used as a horizontal ‘smiley face’ in a computer message by Scott E. Fahlman

In other words, no sooner had people begun to develop a new tool for technology they then realised its downsides. In written text – especially in the shorter, more staccato register of posts or emails – it can be hard to make it clear when you are speaking ironically. If you use very few words, the tone can come across as curt. Most of us will have a horror story of having made a joke in an email that was taken the wrong way. Now people scatter emoticons over their emails, tweets and posts in an attempt to clarify their meaning (or perhaps deflect negative reactions).

It emphasises two important truths: first, that just because we ‘meant’ one thing when we wrote a message, doesn’t mean that whoever reads our message will pick up the same meaning; second, that different communication methods offer different benefits and disadvantages. This may sound blindingly obvious, but we often manage to ignore it at work.

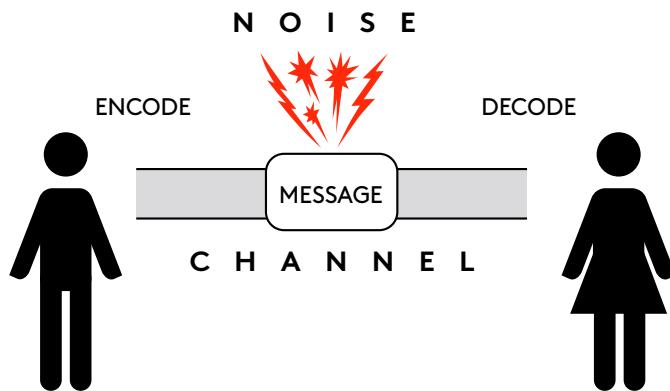


Figure 5. Encoding and decoding the message

Let's consider the first point. Communication is often described as being made up of both sender and receiver. Thinking about this helps explain why so much communication can get dropped, twisted or transformed – even just between two people. A classic example is that of a manager talking about 'change' for the company. No matter how enthusiastic, how well argued or how clear the data, the presentation might mean something very different to its audience. 'Is my job safe? What does this mean for me?'



Figure 6. Sometimes it really doesn't matter what you say – people still fill in their own blanks as to what you are communicating

In 1934, George Herbert Mead offered a slightly more sophisticated model for thinking about communication – 'gesture and response'. He points out that the 'gesture' (by which he means words, actions, body language, etc.) has no actual intrinsic meaning in itself until it is interpreted by a response. This is useful because it can help to step away from concentrating on creating a 'perfect' message. If you spend hours and hours crafting an email to ensure it cannot be misunderstood then you are probably using the wrong medium. If the recipient is still upset by the joke – in spite of all your flashing emoticons – then rather than being irritated by his stupidity, it might be worth wondering what it is that can't be said outright, but that needs to be presented as a 'joke'. When communication is viewed not one way – sender to receiver – but as both of you working together to reach a shared understanding, the difference can be dramatic.

This leads us onto the second point. Communication methods are appropriate in different circumstances because of their particular advantages and disadvantages. In a phone call you can hear a person's tone of voice, but not see their expression, in an email – as we've said – tone can be hard to distinguish correctly. All of us have experienced someone – often a partner – responding to the question 'what's wrong' with 'fine', spoken in a tight angry voice with averted eyes. It means exactly the opposite. Depending on our mood, we will either work out what's really wrong or stomp away ourselves.



According to a famous experiment conducted in 1967 by Dr Albert Mehrabian, more than half of emotional information in a conversation is communicated through facial expression, while over a third comes from a speaker's tone and only 7% is transmitted from the actual words used. Such thinking has led some companies to suggest banning emails outright, relying on phone calls, meetings and social media instead. Others point out that email is cheap, can be used to communicate with large groups of people and send large packets of information and – crucially – is asynchronous. The recipient can read and respond to the email when he has time, rather than interrupting his work to answer a question in person.

Figure 7. A mime artist – acting out a story through body motions, without use of speech

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### **Activity 3: How many ways?**

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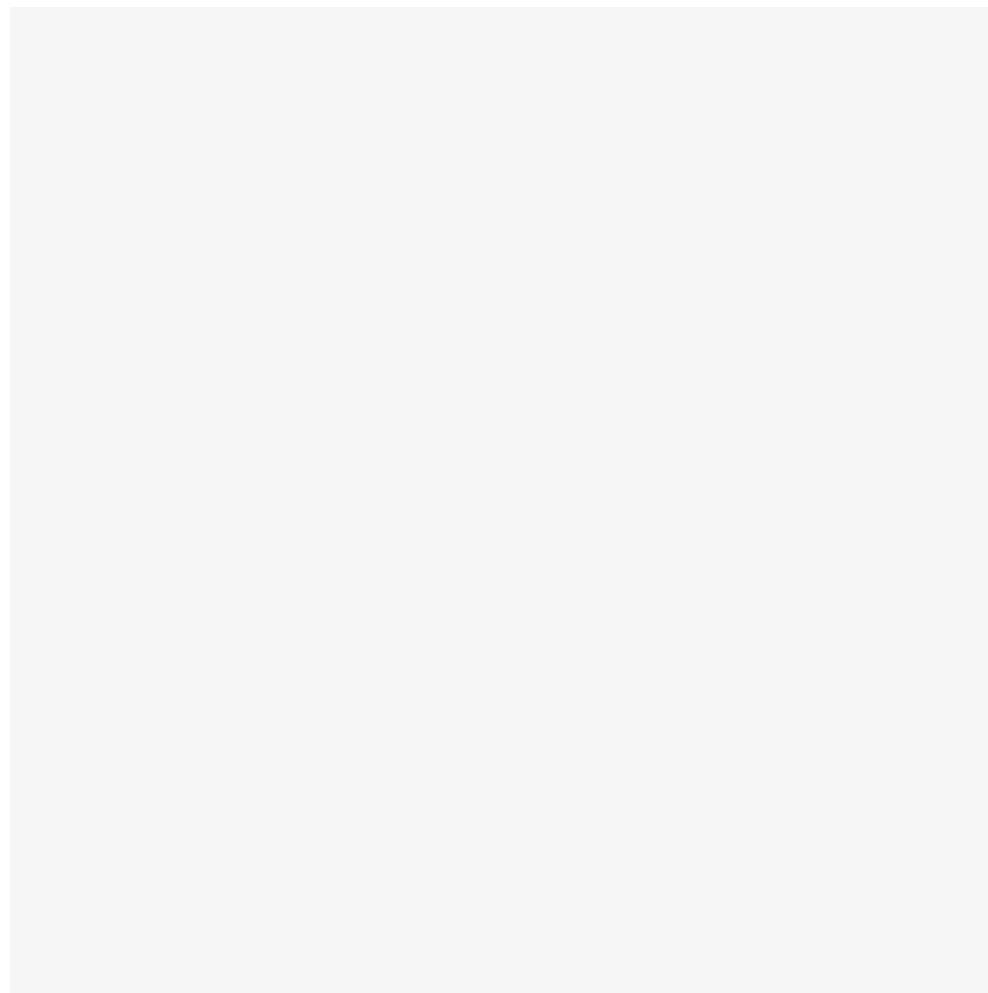
This activity can take place between any number of pairs. It can take up to 20 minutes.

Both players have to hold their hands beneath a table. On the count of 3 they must put their hands on top of the table. If they are showing the same number of fingers, they will get a point.

After a while, most people realise that the serendipity of having the same number of fingers is not happening very often. Some will then realise that nothing in the rules says they cannot communicate.

At this point offer a new rule. They can communicate in any way they like to align their thinking before the 1,2,3 count – BUT they can only use a method of communication once. For example, on round 1 they might talk, on round 2 they might hold up a number of fingers, on round 3 they might knock a number of times on the table, etc.

Continue for as many rounds as the pairs can keep thinking of new communication methods.



## Understanding the pros and cons of your communication method

Face-to-face communication offers a richness of experience because it allows us to observe many other things as well as words – the body language, tone of voice, gestures and subtle cues that tell us if someone is uncertain, unhappy, confident, determined, angry, bored... These emotional states will have a big impact on how someone will perform the work – or whether they even intend to do it at all.

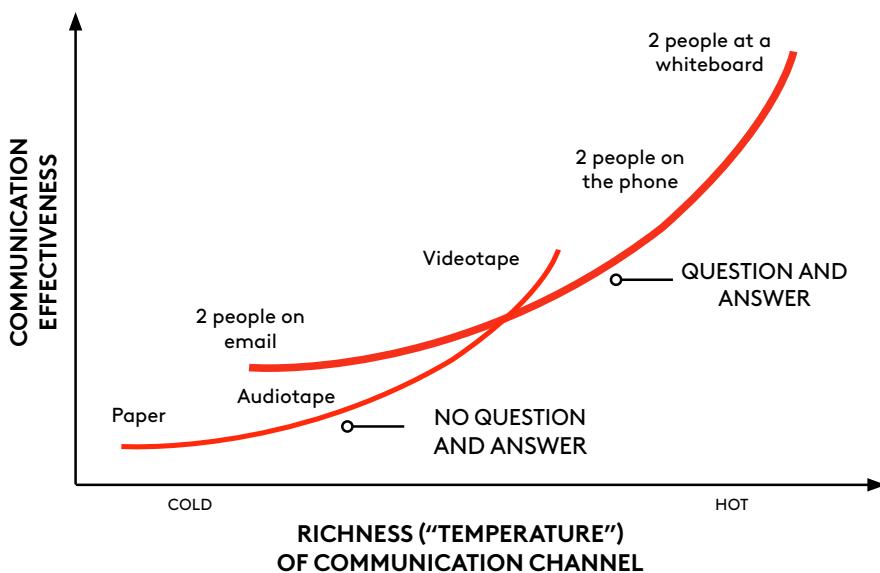


Figure 8. Communication effectiveness and richness

General proximity has a huge impact on the number of communication opportunities there are. Thomas Allen from MIT found that the communication between two engineers was a direct function of how far away their desks were in the building. By the time two desks were more than 25 metres apart, the probability of once a week communication dropped to just 5%.

In the past, such studies used to be taken to mean that all organisations should invest in co-located teams to enable frequent, informal face-to-face conversation. Increasingly the needs of a distributed working environment have made this seem overly idealistic. Remote working is easier for some individuals in the same area and inevitable in global organisations. There are several tools which try to offer the benefits of richer communication alongside the reality of geographical separation, with people living in different countries, working on different sites, or requiring flexible working hours from home.

Group online video calls that are permanently connected but sit in the background of the screen, for example, allow people to observe facial expression as well as tone of voice. They often have additional functions that allow you to mark yourself as 'busy' and permit chat instead. There are also group inboxes with chat tools to keep the team connected; these are often preferable to email because they keep conversations open and shared, rather than private between individuals. Someone who is in a separate meeting or engaged in individual work (coding, writing, designing, etc.) can check back over comments or emails later.

Such tools are designed to allow informal communication opportunities – the opportunities for ideas sparked when talking about something seemingly unconnected or relationships to develop through shared jokes and chat. People need to experiment with differing tools to see how to make them work most effectively. Organisations need to enable such tools – allowing employees the second screen which makes their use easier, allowing people to download and experiment with new applications and paying for those deemed the most suitable.

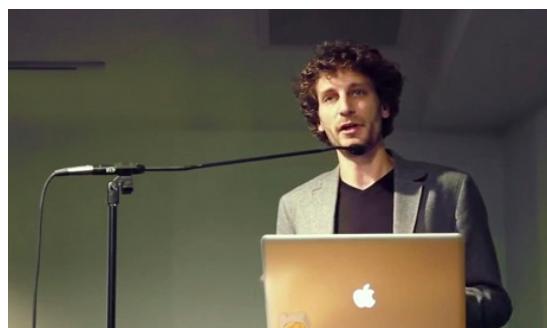


Figure 9. Ryan Tomayko at one of his talks

Ryan Tomayko talks feelingly about how well open-source software works – how people collaborate and coordinate their work in spite of using remote communication tools. In fact, Tomayko goes further and says that open-source works because of using tools with very low richness of communication. Github mandates that individuals do not risk interrupting one

another's flow and instead use asynchronous communication tools. Thus, the Github team prefer email and chat with a transcript and avoid real meetings and phone calls. However, Tomayko goes on to say that these rules do not apply when working on strategy or vision. Those tasks are dealt with best when a group is 'locked in a room'. Finally, Tomayko points out another crucial action which must be done in person – celebrating success or achievement together.

Email is fantastically quick and allows other people to respond to it in their own time rather than being interrupted by a phone call or meeting. We've summarised some of its problems already, but another important one is worth exploring. Because it is so fast, we can simply type our stream of conscious thoughts and press send. Then it's gone. How often have you – in the heat of the moment – composed an angry rebuttal, pressed send... and then regretted it? Email is great for sending documents, news and simple informal communications to help with coordination (inform about meeting arrangements, etc.), but if there is emotional content or decisions likely to affect someone personally, then it is best avoided. There is nothing worse than an escalating war of emails. If you ever find yourself dreading opening emails from an individual then it is time to pick up the phone or – better still – walk over and talk.

The trick is to recognise where you need rich communication, and where the asynchronous nature of online communication tools can help. In general, the more collaborative the work required, the more you should invest in rich communication.

Language – whether in person or remote – is not the only form of communication. We'll go on to look at some specific non-verbal tools that help us communicate better in the section on tools and techniques.

## CASE STUDY: Yahoo! gets real

There has been some public debate recently on the benefits of real versus virtual communication. When Marissa Mayer took over at Yahoo!, she banned remote working. Hundreds of employees who had been working from home suddenly had to change their routine and come into the office on a daily basis or leave. Presumably Yahoo! had sufficient office space to make this possible (many modern offices would be crammed to overflowing if every employee was present at the same time).

Although the email was intended to be an internal one, it irked employees so much, it was instantly leaked to the press.

The HR email read:

"To become the absolute best place to work, communication and collaboration will be important, so we need to be working side-by-side. That is why it is critical that we are all present in our offices. Some of the best decisions and insights come from hallway and cafeteria discussions, meeting new people, and impromptu team meetings. Speed and quality are often sacrificed when we work from home. We need to be one Yahoo!, and that starts with physically being together.

Beginning in June, we're asking all employees with work-from-home arrangements to work in Yahoo! offices ... And, for the rest of us who occasionally have to stay home for the cable guy, please use your best judgment in the spirit of collaboration. Being at Yahoo! isn't just about your day-to-day job, it is about the interactions and experiences that are only possible in our offices."

The grumbling from Yahoo! employees was severe – many felt they had private agreements that the new policy trampled on. Several other companies were gleeful at a policy that seemed old-fashioned: the Wordpress founder, Matt Mullenweg used it as an opportunity to recruit, commenting "For anyone who enjoys working from wherever they like in the world, and is interested in WordPress, Automattic is 100% committed to being distributed. 130 of our 150 people are outside of San Francisco."

Others understood that in the context of change at Yahoo!, a period of intense collaborative working and unity was required. Several commentators outside the company also supported Mayer – not least because she had made the decision after apparently checking VPN logs and noting that many remote workers were not logging in often. Rather than accusing them of 'slacking off', as many were quick to do, it might be fairer to suggest that remote working, whether because of tools or attitude, was simply not working for Yahoo!'s employees. As a Yahoo! spokesperson commented, "This isn't a broad industry view on working from home – this is about what's right for Yahoo!, right now."



Figure 10. Yahoo! employees adjusting to new policy (by Jerry King for Tom's IT Pro)

## 3.2. Collaboration

Morten Hansen begins his book *Collaboration* by unequivocally stating ‘Bad collaboration is worse than no collaboration’. In-fighting, politicking, endless meetings trying to reach a consensus that no-one really likes, design by committee... bad collaboration is the graveyard, while good collaboration is the nursery of organisational success.

In a Harvard Business Review blog, John Hagel III, John Seely Brown and Lang Davison gave a complete, but rather clumsy definition to try to encompass why this method of working benefits organisations. They see collaboration as: ‘People and institutions getting better faster working together in flexible but enduring relationships where collective performance rapidly increases and new knowledge accumulates over time.’

This tries to encompass several points: collaboration brings together large quantities of knowledge (especially tacit knowledge) from individuals; it helps create and exchange this tacit knowledge so that participants improve their learning because of the collaboration. The definition’s insistence on ‘flexibility’ is an attempt to address the problem of scale that collaboration suffers from. Put simply, a small group of five to ten people can manage all their interactions fairly naturally; any more than that and the management of communication and coordination begins to eat into and undermine collaboration. The problem rises exponentially as you increase participants.

A small startup of **7** people has **21** connection points to maintain

A group of **12** has **66** connection points to maintain

A group of **60** has **190** connection points to maintain

A large enterprise of **6,000** (Facebook’s headcount) has **17,997,000** connection points to maintain

The conditions where collaborative working and team-working is valuable, tend to be similar. As we discussed in the Teams session, these are: complex tasks or problems; consensus decisions are required; high level of choice and uncertainty; high commitment is required; broad range of competencies is needed.

Most teams need to work collaboratively within their own structure. But that doesn’t mean they’ll collaborate with others. Indeed, a sense of team may well include pride in this team being better than all the others. While good for internal bonding, this can be toxic for the wider organisation.

## **Activity 4: Solving the puzzle**

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This is a great training room exercise or activity for the extended team when you want to make a point about collaboration. Ideally it requires a group of about 20 people who can be split into 4 sub-teams.

### **Prepare:**

You need to buy 4 jigsaw puzzles of a similar size and picture. Unless you wish to be there all day, we would recommend that a puzzle of about 50 pieces is the right number. Take about one-quarter of the pieces of each puzzle and distribute them between all of the other puzzle boxes. Close the lids and put each puzzle on a desk.

When everyone arrives and has separated into 4 groups, tell them that, as a team-building activity, you wish them to use teamwork to solve the puzzle as quickly as possible and there will be a prize for the team displaying the best teamwork and fastest time.

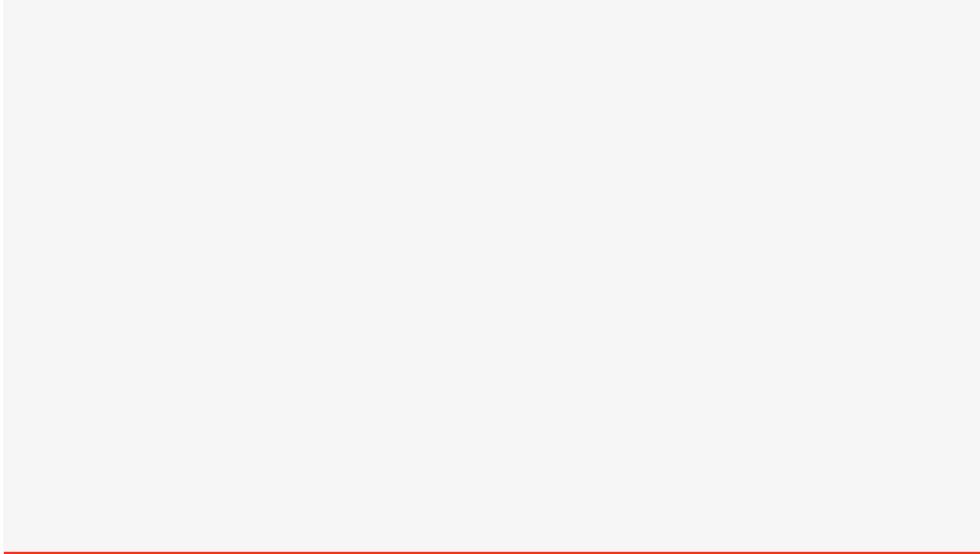
Set the timer and tell them to begin.

At first the teams will be in strict competition with one another, but as time goes on and they discover that they are missing some pieces and have others that don't belong, they will realise that they need to swap and cooperate to finish quickly.

If one team finishes first, do not stop the timer, but wait for all the others to finish as well.

### **Discussion:**

When discussing this activity you want to see if any of the following points emerge naturally: only cooperation (and even collaboration) could get the puzzles finished as quickly as possible. If time was spent negotiating swaps or trying to steal pieces then it made them slower. This suggests that the 'team' in question who needed to work together was all of them. At this point hand out the chocolates to all – since that's the fastest team.



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## What stops us collaborating? The four barriers

Morten Hansen identifies four main barriers to collaboration. Most of us will recognise these in our organisations (and in ourselves, if we're honest).

### 1. Not invented here



When you were a child, did your parent ever point to some other child and say, "look how good little Johnny is at eating his greens / tidying his room / going to bed on time"?

Did this comparison ever motivate you to go to Little Johnny and earnestly ask him for tips on how you too could improve?

No.

Funnily enough adults in a large organisation feel the same way. There may be some brilliant advice or a technology developed by another team or department, but we tend not to ask for it. If it is given to us, we tend to reject it. What do they know, we think. My problems are much harder than theirs.

But we are fooling ourselves. There is much that we could learn, but we refuse to do so.

We frequently see managers unwilling to accept advice or solutions from those 'below' them in the hierarchy (even though these are often the people with the most direct experience of the problem). Similarly, brilliant new initiatives may be dismissed because they come from 'overpaid consultants' or other outsiders. We see teams hiding problems because they don't wish to be seen as ineffective or risk losing their bonuses. And we see a straight up unwillingness to speak to others because we are simply too focused on our own concerns to think of asking for help.

Ask yourself:

- Do you regularly talk to other departments or teams to find out if they are doing things better?
- Do you attend conferences, hack days or other events to look for new ways of doing things?
- Would you or your managers think less of a team who signalled that they needed help?
- Would you welcome advice and tips from other departments or resent it?

### 2. The hoarding barrier



This is the opposite to the first barrier, a situation where people deliberately avoid helping their colleagues, even when asked. Although it sounds extreme, the attitude is actually not that unusual in companies where departments or teams are in competition for respect and resources.

It does not have to be malicious. Imagine yourself going head-to-head with another project to see who will get funding. I mean, you like those guys, but right now you need to make it clear that their crazy augmented reality project is vague and risky compared to your fabulous project. If the other guys now ask you to spend a day explaining some of the new technical advances you have made, so they can adopt them, will you do so? Or are you likely to say you're too busy? You may even genuinely believe you are too busy – after all your presentation is in a week. But rather than thinking which outcome would be best for the company, you are thinking about what's best for you and your project.

If the organisation has made this worse by linking a bonus to your or your team's performance, the behaviour will be reinforced. If your organisation has a rigid hierarchy then you may find yourself not wanting to share too much information with those below or on the same level with you. After all, knowledge is power. Why would you share that?

Once someone gets a reputation for not being very helpful, he may not receive many requests in any case. He can comfortably tell himself that he would help out, if only he were asked. In the meantime, the colleague who has a reputation for being helpful gets overwhelmed with requests, so that his own work suffers. The organisation promotes the individual with the good individual work record, and penalises the helpful colleague. No wonder that collaboration can feel like a risky strategy.

Ask yourself:

- How quickly would you or your team respond to a request from somewhere else in the business?
- Would you respond to anyone, or only to requests from more senior people?
- Is giving help seen as a positive contribution or a distraction from focusing on the team's task?

### 3. 3. The search barrier



If you have an old sofa that you would like to get rid of, somewhere near you there is an impoverished student wishing she had a sofa – however old – to sit on. The genius of sites such as Freecycle or Preloved has been to match such people up. In organisations – especially large ones – when we face a problem or ask a question the chances are that someone else has faced it or is asking it too. Matching those two people up can have huge benefits – but how to do it?

The bigger the company, the more geographically separated the business units and the more information there is, the harder it gets. Often when we add tools designed to help people find or receive information, we simply overwhelm them. Many organisations have an intranet, a live chat stream, a newsletter, a database of creative projects, a library... there is simply too much information to process or to stay on top of.

Instead – just like the recycling network on the internet – we want something that can match us up at the point of need. Many tools exist for this in the larger world (we use a plethora of social networks to find new jobs or contacts), but creating these tools of networks can be more difficult within a company. We'll look at how to create the most useful type of network below.

Ask yourself:

- Do you know who to ask in all the business units if you need help with a problem?
- Does one person in your team receive all requests?
- Is there a formal structure or process in order to find help?
- Do you know what skills and expertise exist within the company?

#### 4. 4. The transfer barrier



When someone new joins your team, you need to help them learn all sorts of things – from queries about the work and process to really important issues – like whose turn it is to make coffee.

The difficulty is that much of the knowledge they require is not so easy to hand over – it is tacit knowledge, the kind of understanding that comes from doing, through years of experience and a shared history. Many people fall into the trap of grumbling ‘oh, it’ll be quicker to do it myself’ and so never try to pass on their knowledge. But since knowledge does have to be shared and transferred from one to another, individuals, teams and organisations need to invest in what helps the transfer. Sometimes these are formal training sessions, but more frequently it is simply time to build relationships and acquire learning. And time, of course, is often in short supply once a project starts.

Just as teams need time together in order to perform, so too do groups who need to collaborate. The relationships that offer a good foundation for this can be cultivated even before a sudden ‘need’ materialises.

Ask yourself:

- Do people from different business units find it difficult to work together?
- Do teams take a long time to get settled?
- Do new technologies or ideas spread quickly and easily around the organisation?

## How do we enable collaboration?

It's important to think hard about which barriers are most prevalent in your situation before thinking about how to tackle them. Since overcoming or lowering the barriers involves awareness and investment, you must decide what to focus on. Hansen reports that a financial solutions company invested heavily in creating an elaborate knowledge management system only to discover that nobody used it. The barrier had not been an inability to find the information, but an unwillingness to try.

### Identify that collaboration is what you really need

Collaboration is not always the right answer – just as teams are not always the ideal unit of work. Individual specialists can work separately while they, or a third party, coordinates their resulting output.

Collaboration costs in both time and money, so you need to be sure that doing it will provide genuine business benefits. As anyone who has ever worked on a creative project with others will testify, collaboration does not necessarily mean consensus. Indeed, its greatest value often comes from dissent and the differences between people being better understood. While the eventual solution is normally more robust and better, it is often neither cheap nor quick.

Be especially wary of that convenient catch-phrase 'synergies'. What does that actually mean in your context? Sometimes a phrase like 'exploiting synergies between the physics and chemistry departments' is simply a euphemism for sacking half the lab technicians. If that's what you mean then you better be certain that the synergies really exist and that your physics lab technician is as competent with handling sulphuric acid as he is with lasers. Otherwise you might end up with a rather costly explosion.

At other times synergy means a close integration between parts of the enterprise – the kind of brilliance shown by Disney in using creative assets. Disney began drawing an enterprise integration map that laid down formal structures for collaboration and asset sharing in 1967. They use departments in music, comic strips, publications, toys, shops and the theme park to promote the films and then build on them. In this way the company exploits the creative content not once, but six or seven times over. The Lion King, for example, first screened in 1994 and grossed \$50 million at the box office. The surrounding activity (DVD, toys, books, etc) has proved worth more than \$2 billion to the company.

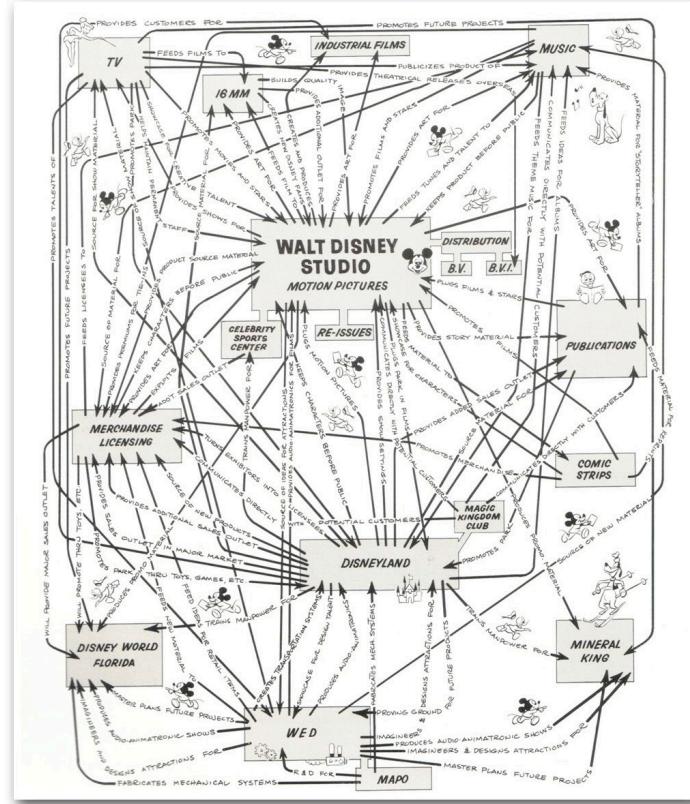


Figure 11. Disney's integration map

The potential benefits from collaboration are vast, but so are the potential costs. Sony famously copied the Disney model with Arnold Schwarzenegger's film *The Last Action Hero*. They invested heavily in synergies with Columbia Pictures, creating a soundtrack for Sony Music and joint marketing for a range of spin-offs. But the film bombed and no benefits materialised, in spite of the significant time and cost invested. The focus should have been on the initial product, the film. The collaboration with marketing executives and a soundtrack was entirely secondary and proved distracting.

### Set up the right environment

In our Teams session we mentioned that the organisation itself must create an environment in which teams can flourish. In particular an individual's goals need to dovetail, not conflict, with the team's goal. The same is true more broadly of collaboration. If your organisation pits teams to compete against one another, but then asks for an ambitious collaborative project, the project is likely to fail. The environment is competitive, not collaborative. This can be even more destructive than the equally common misalignment of interests between third parties – a vendor, for example, whose priority might be to sell a solution whether it is needed or not.

Organisations can help make collaboration more successful by trying to lay the foundations for the easier transfer of knowledge – a shared sense of company culture; a shared vocabulary and terminology when talking of processes and technology, and opportunities for people to get to know one another.

This last suggestion often causes debate – do company drinks and dinners really promote collaboration? Sharing a bottle of wine may not miraculously break down barriers, but it does help break down the search barrier, because individuals build their networks by a combination of work and social contacts. You may not know who in finance will help you resolve a problem, but you can at least ask that nice bloke you talked to at lunch to put you in touch with the right person.

These informal networks can be powerful, but their ad hoc nature will not work for everyone. The organisation also needs to look at more formal networks and be disciplined about building bridges between separated business units or company areas. These bridges should be built only where needed. It takes time to successfully manage and develop relationships, so you should only invest this where collaboration is likely to be of value. As Hansen points out – it is also important to focus on the quality and diversity of the network. Rather like having lots of ‘friends’ on Facebook may not actually equate to true friendship, amassing the most business cards or contacts may not mean having the best network.

Finally, practising what you preach is crucial. If senior managers hoard information, credit-steal and take any opportunity to do down another department, then employees will take their tone from behaviour and not from noble words about collaboration.

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### **Activity 5: Speed dating network**

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This activity can be a good way of getting ideas and also stimulating networking at an all hands or large operational review meeting.

In advance you need to think of a crucial question related to the purpose of the meeting. It might be ‘what’s the one thing we need to change?’ or ‘what annoys our customers most right now?’. Find something that there are many different ideas about.

You’re going to run this just like a speed dating event. Everyone should have a card to make notes about their conversations.

Everyone should be standing up in the room. When the first bell rings, find a partner. If you don’t have a partner, put your hand up to make it easier to find someone or be found.

You will each talk about the subject and your ideas. You need to make a couple of notes on your card to record to whom you spoke and summarise the idea to aid your recall. Later, you will record the priority order you give to the ideas. Make sure you each read the comments on each other’s card and agree that what you’ve written summarises the idea.

Name	Idea	Priority
Mark	Develop in-house capability, remove dependence on contractors	
Jessica	Grow training and education section. Higher margin; tools give us edge on competitors.	

After 5 minutes the bell will ring again. You have 30 seconds to find a new partner for another 5 minutes.

After you have spoken to 3 to 5 different people (depending on numbers) the bell will ring twice.

You now have 2 choices, in a smaller group, you can ask everyone to present the idea they chose for number 1 priority in just 2 minutes. No-one may present their own idea. If someone else chooses the same idea that you have, simply raise your hand when they present it rather than re-presenting it!

In a larger group, gather 3-4 pairs together and allow 10 minutes to discuss what was striking about the answers or conversations and allow people to assign priorities to those they heard. Each group must select 1 idea to present to the others in just 2 minutes.

## **Commentary:**

The activity allows you to gather a large quantity of viewpoints in a relatively short period of time. The one-to-one conversation offers a more personal connection than putting ideas onto a flipchart, while the need to agree the summary and re-present it ensures individuals listen actively to others. Standing and moving about tends to keep people more energised and active.

## CASE STUDY: Apple iPod vs Sony Connect

It may be hard for readers to peer this far into the past, but in 2001, Apple was not known for music. In fact it had nothing at all to do with music. It made computers – pretty cool ones. Then Steve Jobs launched the iPod along with iTunes software that allowed customers to manage music on their computers as well. It was an instant success, selling 125,000 units in its first quarter. Although the device looked cool and had a beautiful interface, there was little truly revolutionary in technology terms – the product brought together expertise from numerous third parties: a hard drive from Toshiba, a blueprint from Portal Player, software from Pixo and a battery from Sony. The internal Apple teams coordinated all this with their own hardware and software design twists.

Sony had been caught on the hop, but they were a bigger and more experienced company than Apple. In particular, they knew a lot more about music. They owned all the elements in-house and so creating a knock-out competitor to the iPod should have been a real possibility. The vision for a product would involve connecting the many different parts of Sony – hardware, software, electronics and recording labels in both the US and Japan. Bearing this in mind, Sony called the project 'Connect'.

There is no prize for guessing that the project flopped. It was marred from the beginning by huge fights between the many teams. The US groups wanted particular technologies but were over-ruled by the Japanese team; the internal software development team refused to collaborate with the third-party engineers; key stakeholders were unable to influence design and user interface decisions, and a key group was excluded from the project altogether. Sony insisted on going it alone in several areas, eschewing the MP3 standard, and promoting its own ATRAC compression technology – which no-one was interested in. The final product garnered terrible reviews. After an equally failed attempt to rescue it, Sony Connect was killed in 2007. It represented millions of dollars of wasted development.

Of course the real disaster was not just the sunk cost, but the lost opportunity. Apple's iPod became completely dominant, and Apple's star burned brightly while Sony saw a 20% drop in share over a 4-year period. It is a battle in which

Sony has still not regained its footing. There were many problems with the design of the Walkman intended to take on the iPod, but these were problems that could conceivably have been solved by good collaboration. With so much effort wasted on internal warfare rather than external competition, there was never much of a chance.



Figure 12. Sony's share price has fallen 59% which is hard to see against the success of Apple

### **Consider the goal and make people accountable**

A team must share a goal, and so must those who collaborate. When dealing with disparate groups, this can be harder than it sounds. After all, everyone in Sony wanted to produce a product that would beat Apple. That should have been sufficient to act as a unifying goal. But it conflicted with other – more immediately relevant – goals. Business units in Japan were wedded to a technology they had developed; US engineers were devoted to their software. Getting everyone to agree that the collaborative goal takes priority over conflicting individual or team goals is not a simple matter. It involves careful thought about the overall goal since this will drive hard decisions.

The goal must affect everyone so that everyone is invested in it – if it only benefits a few groups then the other groups will be less committed to collaboration. That means, of course, it should also benefit the end customer – a goal like ‘increase sales’ can lead to short-term behaviours that damage the organisation in the long term.

Here are some basic questions that help explore whether the goal is likely to help rather than confuse or divide.

- Can it be summed up in a single sentence?
- Does everyone understand it and interpret it in the same way?
- Does it avoid abstractions and bland generalisations?
- After looking at the goal do people have a clear idea of how their work would contribute to it?
- Could the goal be measured?
- Is it set at the right level – hard enough that it will stretch people, not so impossible that everyone will give up or cheat?

A goal should not be about extrinsic motivation (hit this and we'll reward you) but rather about setting a compelling vision which enables employees to make choices (in order to achieve the goal, I need to do this work rather than that).

Perhaps the most famous goal of all time was that announced by President John F Kennedy, ‘I believe that this nation should commit itself to achieving the goal, before the decade is out, of landing a man on the moon and returning him safely to Earth.’ It’s interesting that the Head of NASA, was reluctant to accept this for a long time, preferring the more nebulous and general goal of ‘pre-eminence in space’. Kennedy argued that a man on the moon would symbolise pre-eminence. Whether it would turn out to be more useful remains open to debate, but as a symbol, Kennedy was undoubtedly right.

Next, people need to take joint responsibility for this goal – will the success or failure really matter to everyone? Of course, Sony’s collaborative failure wiped millions off the share price – which certainly affected employees. But the eventual issues seemed far distant compared to more immediate, local goals. The organisation had failed to make the benefits of collaboration apparent or to hold the various units accountable for how they failed or contributed to making Connect succeed.

### 3.3. Coordination

Have you ever left a bar with a group of people to go out for dinner? Standard practice is to mill about on the pavement aimlessly. Someone has forgotten their coat. Someone suggests going to another pub, someone else fancies a curry, the guy who's name you can't remember insists there has to be vegetarian options. Meanwhile half the people have broken off into little groups at the back chatting about how bad the weather is. Eventually – fed up – you shout 'everyone follow me! We're going to Balti House!' You stride off, hoping that the group will drift after you.

There's a very good reason why we invented the command and control style of management. On the whole it is a highly efficient way of handling large groups to coordinate their activity. There is clarity on who makes decisions and on how communication flows. In fact, it keeps the need to manage communication, collaboration and coordination to a bare minimum. Walmart has six management levels between someone on the tills and the CEO, while even the most hierarchy-obsessed organisation can normally get information relatively quickly from the shop floor to the top.

Coordination by decree works in simple situations (like ordering an army to charge up a hill), but it's not effective in complex situations. When information just goes up and down, there's no guarantee that the top of the hierarchy is hearing the correct information or from the best person. There are few self-correcting mechanisms to act as a check on miscommunications and the resulting poor decisions. It also stops groups from functioning independently – and this can lead to unacceptable delays.

## **Activity 6: Getting in a twist**

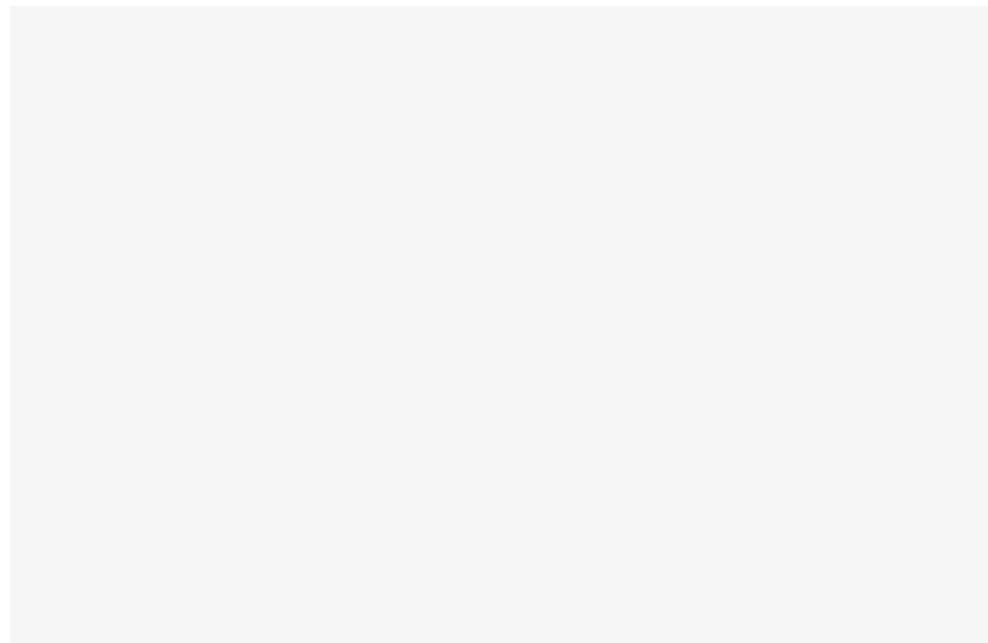
This activity works best with 6 to 12 people. It takes about 15 minutes and makes a good energiser at a team meeting or training session.

Ask one person to be the 'manager'. They should turn their back. Everyone else should form a circle and hold hands. Now get yourselves into a knot – someone can walk under an arch of arms, someone else might step over some hands. Try not to actually dislocate any limbs and do not change hands.



Now tell the manager to turn around. He now needs to disentangle you by giving instructions to people about how to move. Once again, he is not allowed to break any grips or dislocate any limbs in doing so. Time how long it takes him. If he does not manage it within 5 minutes, count it as a failure.

At the end, re-tangle yourselves. Now, using your own self-organising power of movement, disentangle yourselves and time how long it takes you.



### **Commentary:**

Yes, it's obvious, but worth making the point. Those who are in the mess are often better able to get themselves out of it than those with a supposedly 'managerial' view. In spite of the risk of chaos, in fact most teams are quite capable of making decisions and coordinating their activities themselves.

### Coordinating beyond command and control

Modern armies have moved away from command and control. Instead, they allow groups of soldiers a greater degree of autonomy, establishing a broad 'commander's intent'. This can enable decisions to be made much faster and for soldiers to respond intelligently to problems unforeseen at HQ. It's worth mentioning that modern soldiers spend years in training in order to develop skills so that identifying likely threats or good vantage points becomes instinctive. Commander's intent works so well because modern soldiers receive far more sophisticated training than the old-fashioned 'drill and parade-ground manoeuvring' beloved of earlier armies.

Agile development embraces this form of management, allowing teams to be more autonomous and 'self-organising'. Formal training and previous projects offer a framework that allows an understanding of one another's work and supports autonomy.

This can lead to a different problem. Just as modern armies often suffer numerous tragedies from 'friendly fire', so autonomous groups must pay great attention to coordination if there are not to be miscommunications and conflicts that can prove just as costly and damaging as more traditional command and control methods.

There is often an urge to respond to this with constant communication, checklists, lots of documentation or rigid processes. If it turns out that something has been missed then teams ask how they can ensure it doesn't get missed again. They create handovers, institute another meeting or create formal standards that must be adhered to... It's understandable, but there's a risk that all this can become top-heavy, eating up so much time in meetings, updates and planning that no work ever gets done.



Figure 13. Patrolling the office with a checklist attached to a clipboard

In our Requirements session, we mentioned a famous story. When building the Mars Orbiter, two differing teams had been responsible for two elements which had to work together. NASA's team created the flight system software, while a contractor wrote the software which controlled the spacecraft on the ground. Their compatibility had been extensively tested – but the tests had missed something.

The NASA team had used the metric system regarding thrust instructions, measured in newtons (N), while the software that generated those instructions used the Imperial measure pound-force (lbf). That simple error – the ‘metric mix-up’ as they called it – led to the \$12.5 million spaceship disintegrating in the Mars atmosphere.

A standard process, vocabulary and set of tools or metrics can help avoid such coordination errors. It can cause unnecessary problems if one team insists on using one type of tool, while another team suggest a different one. That’s why the organisation sometimes mandates which tools, programming languages, hardware, processes, etc. teams should use in order to smooth coordination. But there may be a price to pay for such homogeneity – perhaps there is an experimental new tool or language that would help one team, refusing to support it not only impacts on their autonomy but can also reduce value overall.

## Coordinating at the software level

The great advantage of software development is that we can coordinate many activities at a software level, and not only at the human level. Rather than having to find extra time to talk about what we intended and what we have done, the software – the output – does it for us. Changes form their own documentation, automated tests their own checklist and process. It is the main reason for the extraordinary success of open-source software creation or a massive publishing venture such as Wikipedia, where articles take the place of code and individuals use various mechanisms to challenge and defend changes.

Many key software processes around integration and deployment are explicitly about coordinating the software which individuals or pairs have worked on. Builds and automated tests exist to ensure that code is only accepted when it does coordinate with the rest of the code – that is, doesn’t break the system.

At a broader level, however, other activities must also coordinate to deliver the product, including design, testing, and marketing. Some elements are more or less tightly coupled than others – some tasks are dependent, others can be run in parallel. A key part of successful coordination is thus to take account of the many tools that permit the organisation to optimise flow across the whole value chain. Make sure that you have read and understand the value of concepts such as small batches, limiting WIP, attacking queues and keeping spare capacity to permit greater flexibility.

## CASE STUDY: Morning Star and managing coordination

Hierarchies are a fantastic way of managing coordination costs, but they mean that collaboration suffers. What happens when a company goes to the opposite extreme, rejecting hierarchies completely? If a company has a flat structure where collaboration is the basis for all decisions, then surely that means that their coordination costs should spiral out of control?

Morning Star is the world's largest tomato processor, churning out 180,000 pounds of tomato paste an hour – not, you might think, the kind of trendy industry in which anarchic management experiments are encouraged. Yet this collection of agricultural, manufacturing and logistics businesses (Morning Star harvests, processes and delivers its tomatoes) is highly unusual. Founded in 1970 and now grown to over 400 employees and \$700 million in revenues, Morning Star has 'no bosses'. The company manages its decisions, its investments and day-to-day work through collaboration and coordinating individuals' activities.



Any employee is allowed to spend the company's money, although they must build a business case to justify doing so and consult with other colleagues. No one person can kill or approve an idea. Targets and metrics are set for each individual and are completely transparent with data shared across the whole company. There are no promotions or set roles, but individuals accept more or less responsibility in certain areas according to their expertise. Every single employee has a 'CLOU' (Colleague Letter of Understanding) which sets out their operating plan for the year that will assist in fulfilling the company's overall goal.

It sounds interesting but difficult. How on earth does the company cope with the sheer quantity of information generated? Managing and negotiating 400 CLOUs seems like an almost impossible task – they delineate 3000 formal relationships amongst Morning Star's full-time employees. It doesn't stop there, either. The individual business units (a manufacturing plant and a harvesting group, for example) will negotiate a contract; haggling over volumes, prices and delivery schedules. It seems like a recipe for stalemate, indecision and a lack of coordination.

The truth, however, is that Morning Star's system works extremely well. It handles the complexity of coordinating these different groups better than many hierarchical companies. The business units claim that however tough the negotiation, the eventual agreement has aligned the interests of the groups more effectively than any mandate, while also taking account of local realities. Individuals creating their CLOUs talk to an average of 10 colleagues in meetings lasting between 20 to 60 minutes. When compared to the amount of time (and the resource cost) of a similar sized company's budget negotiation, project approval, reviews, appraisals and management time, the self-organising structure of Morning Star actually stacks up positively.



Figure 14. Workers at Morning Star looking for the rotten tomato!

Essentially the organisation uses a network effect, with the group of colleagues immediately affected by an individual's work, able to hold someone to account, question results and call for action – including firing someone who consistently underperforms. The same group will contain more and less experienced individuals, with the more experienced staff incentivised to help or mentor new colleagues. The network also ensures that individual freedom does not detract unnecessarily from coordination. While every employee can purchase equipment deemed necessary, for example, those who use the same supplier are put in contact with one another so that they can maximise buying power.

The company optimises their coordination efforts for effectiveness, rather than efficiency. Because employees are allowed to make suggestions for improvements about any area of the business and to ask for any information, they can drive change and Morning Star credits much of its growth to this 'spontaneous innovation'. In other words, the 'cost' of communication and collaboration, managed through disciplined coordination, is one that pays handsome dividends.

Using Morning Star's approach to enhance co-ordination:

- Transparency of data and availability of information allows people to make better quality decisions on their own.
  - Linking each individual and business unit to the overall company goal should ensure everyone is aligned. No competing goals can be introduced.
  - Use networks to manage complexity.
  - Collaboration should be explicitly measured and rewarded (in Morning Star's case because compensation is peer reviewed and depends on how you have achieved your own CLOU and helped others achieve theirs).
  - Slim down bureaucratic processes that block action in the name of control.
  - Persevere in negotiating rather than getting someone in authority to make a call – agreements reached through negotiation tend to stick better.
-

# 4 PRACTICAL WAYS FOR BETTER COMMUNICATION, COLLABORATION AND COORDINATION

Rather than dividing this section up by each form of interaction, we have decided to split out the main ways in which you are likely to need to communicate, collaborate and coordinate. We begin with looking at tools and techniques that are especially useful in one-to-one situations. Two people is the smallest unit of collaboration, but also one of the most common. We go on to consider how you manage this within a team or a small group of between five to ten individuals. Finally we touch on the difficult subject of communication, collaborating and coordinating at scale. Naturally, most of the techniques and points that work between individuals can be applied in other sections.

## 4.1. One-to-one

### Communication

The steps to better communication are not earth-shattering. If you have read any of the many communication advice guides or books or attended training courses on the subject you will recognise many of these points. They are both very obvious, and astonishingly difficult to master. Nonetheless, all of us can become more effective communicators by practising – even if some of the steps initially feel rather forced or unnatural.

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#### **Activity 7: I'm not listening**

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You can play this game with any number of pairs. It takes only 5 minutes.

Ask one person to talk about something she has a passion for – it could be to do with work, family or a hobby.

The other partner must stay seated and silent but should act disinterested, avoiding eye contact, etc.

Afterwards, talk about how it felt to act in that way and how it felt talking with that kind of reaction. For most people it is strangely uncomfortable and indeed feels rude. It is a good way to make people think about body language, the cues we give one another and the importance of active listening.

## 1. Listen actively

"The quality of any interaction depends on the tendencies of those involved to seek and share attention. Competition develops when people seek to focus attention mainly on themselves; cooperation occurs when the participants are willing and able to give it."

**Dr. Charles Derber – The Pursuit of Attention**

'Listen' is really simple advice that is also really effective. Yet worryingly, most people do very little of it. Dr. Derber, quoted above, studied over 1,500 conversations. He discovered that although those talking to one another intended to listen and indeed thought they were doing so, in reality individuals fought to keep the conversation centred on themselves.

At its most basic level listening requires being quiet while the other person is talking. Speaking over someone or shouting others down is perceived as rude and aggressive in every culture. But true listening is more than this – you also have to take in and process what the other is saying.

It's important that you demonstrate that you are listening by sending signals to the other person to prove that you are taking in what they are saying. You can show that you are doing this by offering supportive responses and question, ranging from 'mmm' and 'really?' to 'and what happened then?'. The most powerful technique, however, is to paraphrase back what you've heard. This allows you to check that you understood correctly as well as showing you've been really listening. It's not uncommon for someone to clarify further because of what you reflect back. Finally, pay attention to your body language. If you are rolling your eyes, sighing and yawning while someone is talking then he or she will not feel listened to but dismissed.

You should also observe people's body language as well as their words – do they seem bored, angry, fearful or upset? These provide essential elements of the communication. Over time, not only can you become more aware of people's body language in general but also get to know particular habits – does Rob tend to go very quiet when he is upset? When Jeff starts waving his hands about, does that mean he's passionate or near the end of his tether?

Listening to people does not mean agreeing with them, but listening respectfully allows you to understand why someone feels a certain way and what their argument is based on. It gives you a much better chance of changing it, building on it, or persuading them to do something else.



IM AFRAID TURNOUT ISN'T AS HIGH AS WE'D HOPED. THREE OF THEM MISHEARD THE DATE. FIVE GOT THE TIME WRONG AND EVERYONE FROM SALES WENT TO A HOTEL IN SCARBOROUGH BY MISTAKE!

## 2. Clarify and explore



Figure 15. Columbo – the detective with his own distinct line of questioning to shrewdly solves all of his cases

Asking questions helps explore a person's idea to understand the concept in more depth. When doing this it's important to keep questions generally more open: How did it happen? Who was involved? Can you tell me more about that? Closed off or judgemental questions are to be avoided. 'What happened?' is very different to 'How did you screw this project up?'.

You can dig into the detail or clarify points you were unsure about. When exactly did that happen? Can you give me an example? How often has this occurred? This helps you get into the data on which people are basing their ideas, bringing abstract generalisations down to concrete occurrences. It's a good way of calming down anyone who is upset. It's like changing a teenager's angst-ridden 'everybody hates me!' to the reality of 'I don't have a date for the prom'.

Finally you can gather information about why something is important – about what criteria they are basing decisions on. In disagreements, this can help find another way of satisfying the real intentions. Think about deciding where to go for dinner. If one person announced 'let's go to the pizza place', while the other says 'I want to try that new seafood restaurant'. What lies behind their preferences? Perhaps the first person isn't particularly interested in pizza but is thinking about the cost and about how close it is, while the other person is keen to do something different and romantic. By finding out what each really wants, it's possible to achieve a compromise that satisfies the underlying criteria.

## 3. Expressing your own view

Obviously, as part of any communication you will need to put your own idea and point of view across. You need to do this as if someone were helpfully offering you the same exploration support that you offered them.

Expose your reasoning. Instead of asserting what needs to be done, show the thinking that has

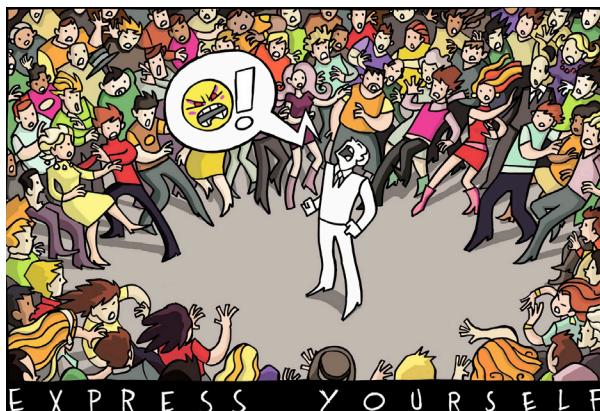


Figure 16. Probably not the best way to put your idea across

brought you to that conclusion. Reveal your data and interrogate it yourself – showing whether they may be isolated or part of a trend. The more concrete your examples, the easier it will be for others to grasp your point and make up their own minds.

Most ideas can be made stronger by having others build on them. People asking questions or pointing out holes will enable you to find problems, fix loopholes and improve. You can provide this service for other people's ideas as well – great ideas don't always have the most brilliant advocates, but by paying this kind of focused attention you give the idea the best chance, rather than deciding based on who has the snazziest slide transition effects.

#### 4. Valuing dissent



"I encourage dissent. That way I can get rid of anyone who doesn't agree with me."

Figure 17. Maybe time to look for another job...

Consensus can be deadly. If no one ever challenges anything, disagrees or raises issues (either because they don't want to rock the boat or because they're afraid of the consequences), then the result can be stagnation, blindness to risk, a lack of innovation and a loss of the best talent. That means dissent and disruption are actually to be welcomed.

Knowing this is one thing, handling dissent is quite another. Different people work differently and have different attitudes to debate, argument, confrontation and conflict. One person's assertiveness is another person's all out aggression.

### **Let go of assumptions – share positive intent**

If you find yourself having an argument with someone – a passionate disagreement over what project the company should devote resources to – start by remembering that you both share the same goal. You are both trying to do your best and you both want the company to succeed by investing in the best project. It can be worth restating this (not that you're trying your best, that's just annoying) – but the goal that you believe you're both working towards.

Funnily enough human beings impute all sorts of nefarious motives towards those who disagree with them. ‘He’s empire-building; oh she’s out for revenge ever since I criticised her data in the board meeting; he’s just agreeing with the CEO to gain favour’. But most of the time we are wrong. We jump to conclusions, while congratulating ourselves on what wonderful judges of character we are. Our conclusion then stops us noticing contradictory data (confirmation bias).

During conflict, make a conscious effort to let go of your assumptions and go back to listening and exploring. When you expect the best of people and make that clear, they will normally try to live up to that expectation.

### **Don’t let disagreement turn into dislike**

Many of us can have passionately different intellectual and even emotional disagreements, but this need not become a lasting conflict. Think of the many friends and family you have with whom you disagree on politics or some contentious issue.

But when a disagreement has strayed into a really uncomfortable level of passion, then it is often worth considering its impact on your relationship. If you’re talking over a previous conflict then acknowledge the fallibility of memory and take some time to check what both of you felt happened. You might be astonished by what the other person remembers or felt. Because we all have different styles, we can all indulge in behaviour that seems OK to us but has a horrible impact on someone else. Most of the time we didn’t intend someone else to feel bad or to go home unhappy and demotivated. And even if in the heat of the moment we did want to embarrass or upset them – most of us feel pretty ashamed of this the next day. The behaviour was normally the result of our own frustration or insecurity – whether we repeated gossip, sniped at someone during a public meeting or outright lost our temper.

Where anything like this has happened, it is very important to admit the mistake and apologise. Justifications all too often come across as excuses or defensiveness. If someone has pointed out poor behaviour to you, depending on the situation, you can either just thank him for pointing the mistake and move on. If there is another side to the story, you can ask ‘may I explain how that happened?’. If you are coming to apologise then you can make it clear that you’d like to discuss the events because a better working relationship will help you both achieve your shared goal.

Old habits die hard. Conversations that deal with poor communication behaviour often need to happen several times. Always try to return to the shared goal, to understanding what happened and to suggesting how you'd like things to happen in the future. You might simply say, 'if you feel this way again, please come and talk to me about it'. Or you might have very specific warning signals that you can discuss, 'when you raise your voice I know you are simply showing how much you care, but to me it sounds as if you're angry. The next time it happens I'm going to remind you about this conversation and let's both try to act differently.'

### Honesty in emotion

Good communication means speaking honestly. This is not the same as blurting out whatever comes in your head or saying all the wounding things that you thought of after your last argument. Use an intelligent filter and try and think about what lies behind the angry statement that you would like to make and see if that might be something more appropriate to share. But none of this means that you can't say what you're feeling – including feeling upset or angry.

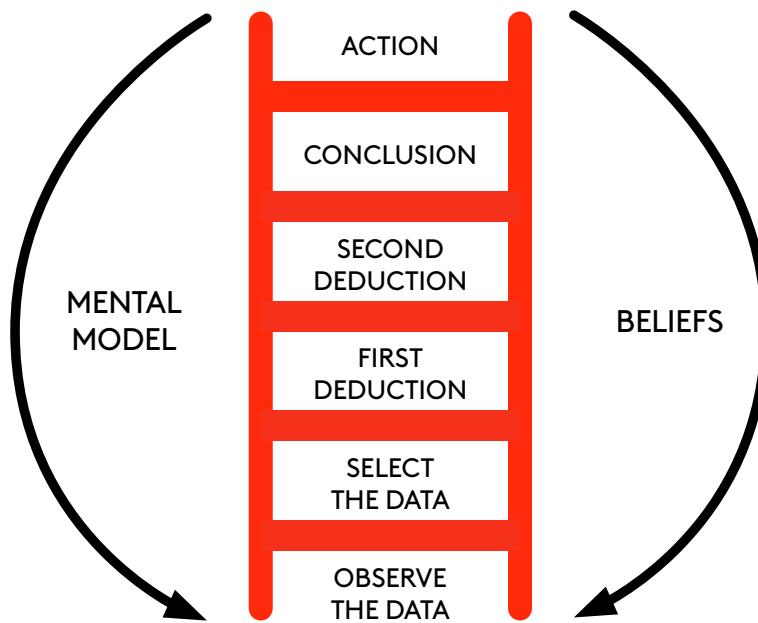


Figure 18. Some people find it easier than others to put their foot in their mouth (say something stupid or embarrassing)

Being able to do this is important, although not always easy – telling someone we feel hurt makes us vulnerable. That means being sensitive when people manage to tell you they feel emotional. Those who don't manage this are often the ones who engage in sniping comments, mockery or constant grumbling – all of which is far more wearing to themselves and to everyone else.

Remember that listening and understanding is not the same as agreement. If someone tells you they hate you, you don't have to start beating your breast and lamenting 'oh, I must be a terrible person'. But it is worth taking the time to understand exactly why someone feels this way and what he would like to be different. Deciding what to do with this information remains a choice for both of you.

## Using the Ladder of Inference



This model was developed to explore the reasoning behind the ideas we communicate. It can be a useful technique both for looking at your own communications and the effect they might be having on others, as well as helping you with other people's.

The ladder is intended to expose the unconscious process by which we turn inferences into facts and specifics into sweeping generalisations. When we can see what we and others are doing, it helps us explore alternative solutions and compromises that satisfy the underlying needs.

Think of a ladder standing in a great big sea of water. The water is the 'data' – all of the experiences, facts and observations that make up the world. From this limitless quantity we select some data with which we will climb our way to a solution in the sky. Our first rung is the data selection. Each following rung of the ladder is a step whereby we interpret data and move towards a conclusion or solution. The higher we climb, the more abstract and general our reasoning has become. At the top of the ladder is our final conclusion which leads to action.

How we select data, reason and draw our conclusions depends to a great extent on our personal and professional experiences, our values, assumptions and the environment around us (from culture to economic goals). We call this our 'mental model' and it forms the sides of the ladder.

Let's take an example:

Mike looks at a series of graphs supplied by the call centre team (the data). He notes that costs are increasing at a steady 20% (data selection). He knows that the company as a whole needs to make budget reductions and that they will be under huge pressure to make cuts (his mental model). Mike sees that the remedy to this is going to be painful – redundancies and possibly the outsourcing of the whole department off-shore for cheaper labour (first deduction). He hates the idea of valued colleagues losing their jobs and wants to avoid it (mental model).

Mike thinks that by bringing costs under control now, this could be avoided (second deduction). He concludes that the best way to do this is to refuse to replace those who leave, thus naturally reducing the wage bill. He also decides to cut overtime pay (conclusions).

Sam – who runs the call centre – is looking at the same data. She notes that calls have increased 40% since the new product was launched (data selection). Sam knows how hard her staff work and feels it is little appreciated how well they respond to sudden spikes in demand like this (her mental model). By keeping costs down to only 20% Sam feels the team is doing brilliantly (first deduction). She wants to see this acknowledged in some way (second deduction). If their contribution is ignored, Sam feels people will leave and service quality will decline drastically (third deduction). Sam decides to present a plan for rewarding her staff (conclusion).

If Mike announces his plan first, Sam will feel furious and unappreciated. If she presents hers then Mike will see her as irresponsible and unrealistic. The stage is set for a truly terrible confrontation between Sam and Mike in which neither understands the reasoning of the other. Only if the two can climb down their ladders of inference will they be able to look at the actual data together. The ‘true’ conclusion may involve managing spikes in demand after product launches. The goal will be to reduce costs while still providing great customer service.

When we communicate what to us are ‘obvious’ conclusions from towards the top of our ladder, and other people disagree, it is likely that they have made different interpretation or have selected different data. Only by climbing back down the ladder will we be able to understand this.

The problem is that we are very good at climbing this ladder very quickly and unconsciously. When others disagree with our conclusions we tend to see them as idiots. They see us the same way.

Do not forget that the ‘ladder’ is a metaphor. If you demand everyone ‘draws their ladder’ in the middle of a meeting with people or – worse – use it as a weapon to try to devalue their arguments, then you will get a worse result than if you had never heard of it! It’s most useful as a tool to help break deadlocks, when two people fundamentally disagree over a course of action and can’t see where the other is coming from.

## **Activity 8: Drawing your ladder**

Choose a difficult discussion or debate that has happened recently where you have found yourself at odds with someone.

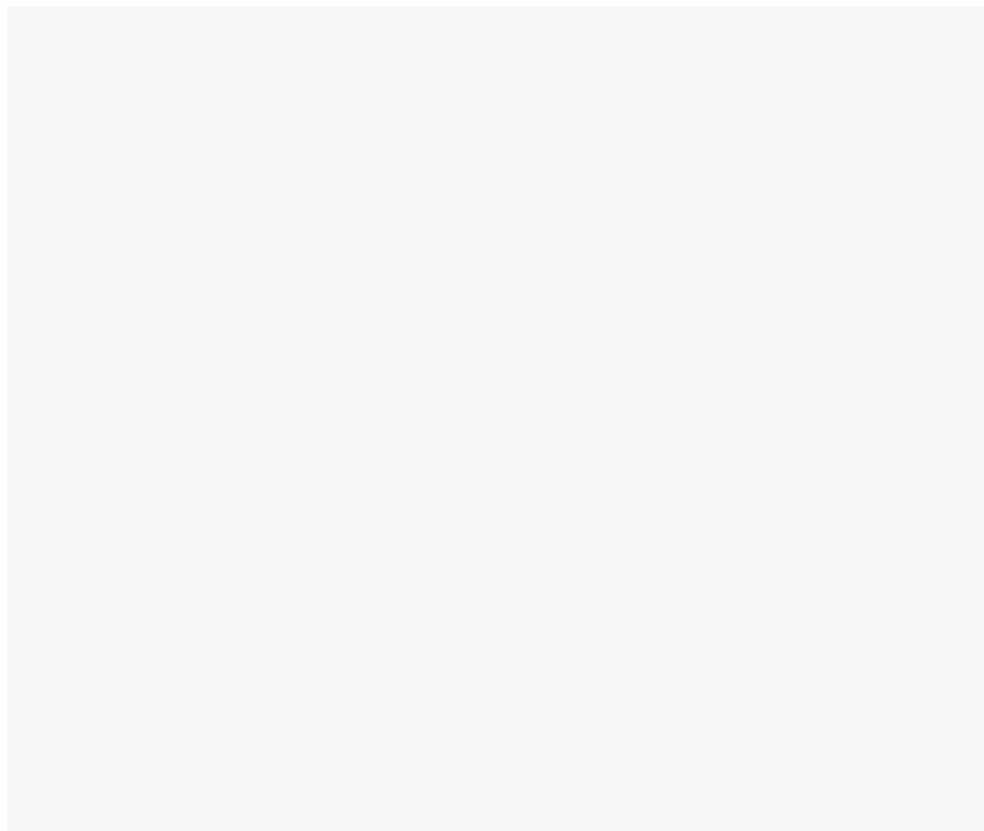
Draw your ladder and at the top write down the obvious solution that someone has unaccountably disagreed with.

Now go to the next rung - what was it that made you believe that to be true?

Work your way down the rungs until you reach the bottom and the concrete data or examples, which you selected.

Spend some time considering these honestly. Is your data anecdotal? How reliable is it? Is it part of a trend? Is there any data that contradicts it or modifies it?

Now, depending on your relationship with the person you disagreed with, you can either sit down to repeat the exercise in person or you can imagine yourself in the person's shoes. Try to think of different interpretations of the data. See it from the point of view of her department – what data will affect them most severely? Once you have worked out what you believe to be a ladder that might lead to the opposing conclusion see if you can check it. 'I've been wondering about your position and I wanted to ask if it's because of x?' Depending on how she responds you can begin to learn more about her reasoning. From this you may be able to find a different way of solving your own, or her, original concerns.



## Collaboration

Collaboration means working together. The crucial element is to ensure that what you are doing centres around the work. Don't organise a meeting to do a hand-off between you or to explain what you've each been doing separately – do it together.

If you're going to code, write the code together. If you're modelling, model together. If you're coming up with estimates, discuss them together.

Simple right? We normally call this idea 'pairing' and it can be very valuable with creative or complex tasks. It can also help disseminate tacit knowledge. Nothing helps you learn like doing, and so working through the budget process, for example, or planning out the customer journey can be an excellent way to bring a new or less experienced team member up to speed by pairing them with an expert.

### Pair programming



Figure 19. Pair programming at Chitika (image by Kabren)

Pair programming, a development technique from XP, provides a near instant feedback loop, helping to catch defects and think about the design and creative solutions as you go. It keeps both people concentrated on the task at hand and various studies have suggested that programmers working together are more respectful of one another's time (i.e. they don't take personal calls or surf the net). The result should be better quality code with fewer defects.

While one programmer 'drives', inputting the code, the other partner helps wherever there's a moment of confusion, uncertainty or difficulty. Two together will do a quick brainstorm over ideas and options to solve a problem; it even helps with the 'writer's block' that can overcome developers just as often as any other creative faced with a blank screen. The other partner also offers more minor assistance, helping to spot errors, remind the driver of names and variables and ensure that the code is clear and readily understood. Finally, the practice means that two people now intimately understand this section of code, not just one.

Both partners must be engaged – that means they need to be talking, asking questions and switching roles every so often. If you have one partner staring off into space and not talking then your pair programming is not working out. It can work when two people are remote and working online but sharing a screen and talking.

There are some ground rules that ought to be obvious, but perhaps aren't to everybody:

Normally you are physically close to someone – this means you need to understand and appreciate their personal and cultural concept of private space. It also means you need to shower every morning. And go easy on the aftershave.

You need enough space – the desk must be large enough for two chairs side-by-side.

If you can't find the words to say what is bothering you then turn away from the computer and brainstorm on paper – or switch roles.

Try to use 'we' when talking to one another. This is paired work, after all. 'We could make that name clearer', will get a better response than 'you really do like to confuse people with your stupid naming ideas'.

Use 'I' when things are really stuck – 'I don't understand that. Can you explain it to me?'.

Listen to one another's ideas. If these are really opposite design choices, then stop coding and draw out the two different routes and discuss them for a bit. You can also try them to see which works out better.

## Go visual

Don't talk – draw! Focusing on something visual helps people understand ideas better and gain ownership of an idea. By having pens to scribble and Post-it notes to add ideas, people gain greater ownership and understanding.

Sit in front of a whiteboard or large pad of paper and share the same diagram. You might want to draw a flow, a mindmap or a timeline.

Keep hold of your rough sketch after the session – you might want to put it up on the wall for the two of you to refer to as you continue working.

Useful tools are often really simple and you can almost always make them visual. For example, when thinking about a decision it can help to write down the pros and cons. But you can go further by drawing a set of scales on the paper and putting the pros on one side and the cons on the other to help you visualise which outweighs the other.

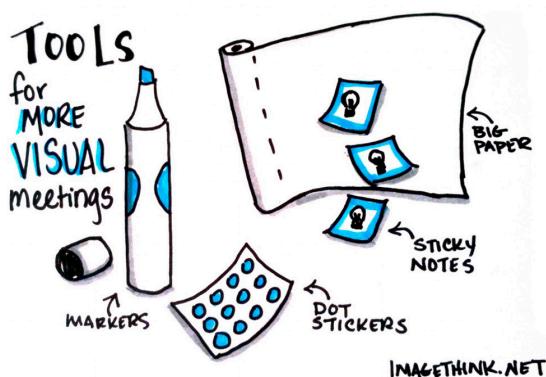


Figure 20. Four simple tools for more visual meetings

Especially if you are dealing with someone difficult, it can help to write a summary of the decision while you're there. It's even better if you get them to write out the decision, conclusion or agreed action. This becomes something to remind them of what has been promised, meaning he's more likely to stick to it. Don't make these formal 'minutes', instead use a Post-it which can be kept on both your desks: 'Bugs resolved within two days!'.

### Share the document

If you are writing a report or presentation then you should sit in front of the same document. Just as with pair programming, it's normally easier for one of you to 'drive' typing away while you both discuss possible routes and ideas. If you do not sit in the same office then you can do this remotely using shared online documents or sharing your screen, while you are also connected using a video call.

Don't forget to allow pauses. If the driver is left typing up the last idea, while the other person has dashed off to the next item, it can start to feel frustrating – more as if you're a secretary taking dictation than a partner in collaboration. Let the driver catch up and then move on together to the next point.

### Search for the right collaborator

Most of us are naturally lazy. We collaborate with the person who sits next to us or with the person who shares our ideas and we like. This means we often end up with the same views – ones close to our own and thus lack the real value to be found in challenge and dissent.

Seek out someone who often disagrees with you. Not only is there value in finding out what might go wrong and fixing these problems in advance, but it's a wise political move as well. By discovering criticisms early, you can handle them and stop them overturning the project at a later or more public point. Nothing turns critics into champions like involving them in the work. There is rarely a better investment of your time than going up to your loudest detractor and saying 'I'm really struck by what you've said. I wonder if you would help me with forty minutes of your time to go through this proposal and improve it in the light of your comments'.

Also search out someone who sits on a different floor or in a different office. This person will have different experiences and views which might prove illuminating. It also helps build your network for the future. No after-work drinks are as effective in building an alliance as actually sharing work together.

### Respect your collaborator

You are working together and you need to respect your time together. It's fine to take phone calls or check emails if they are urgent, but it's good manners to ask and explain. 'I'm really sorry but this is my son's school calling. Do you mind if I take this?' It's not OK to check your phone every few minutes and giggle over the flirtatious text your partner has sent you.

Sometimes and for particularly important bits of work it can be a brilliant idea to get out of the office or away from your desks. Go to the café, find a spare meeting room or take a walk together. Steve Jobs was famous for making all his most important decisions while walking with colleagues. There is something about the process of physical activity and being side-by-side instead of facing one another that can be very liberating. Have you ever noticed how many important conversations you have while driving in a car?



Figure 21. Having a meeting out of the office

### When collaboration goes wrong

We've talked about some of the strategies for dealing with conflict and dissent in the Communication section above. What about the actions you can make and tools you can use when the communication techniques don't seem to be working?

**Take a break or change the environment:** If you are both yelling at each other, it's perfectly acceptable to take a break. Don't storm out of the room, instead make it clear that things are getting a bit too emotional for you and you'd like to let things clear. This is not an excuse to simply duck out of the confrontation and never return to it. Instead be explicit about what you'd like. 'I want to revisit this in an hour.' 'Can we talk about this tomorrow morning?'

It may be worth simply trying to talk somewhere else – 'why don't we get out of the office and take a walk together?' There is something very powerful about this technique, but it must be something you both want to do, rather than a mandate with which only one of you is comfortable.

**Don't give up:** There are two classic ways of giving up and both are equally unhelpful in the long run.

The first is to appeal to authority. If you had a sibling, did you ever take your arguments to Mum and demand she said who was right? Other than intervening when you were sitting on your little brother punching him hard, normally, Mum threw it right back – 'sort it out between yourselves'. If Mum did interfere, it was normally to punish both of you impartially.

Funnily enough, we don't learn from this experience. The workplace is full of responsible intelligent adults who want the boss to decide who is right in a disagreement. This is crazy. Except in rare circumstances the boss knows less than either of you about what is going on. Of course she will make a decision if that's what is eventually required and take responsibility for the consequences, but she's not going to be thrilled about having to do so. Odds on, she will think less of both of you for being unable to resolve the issue.

Her decision will probably be of lower quality than if you had worked out a result that dealt with both of your concerns. Plus one of you is going to be unhappy and resentful – not the best foundation for collaboration or even getting the decision implemented. You probably know people who are expert at avoiding carrying out unwelcome orders...

If you are disagreeing so vehemently then there is probably right on both sides – this means you ought to use the tools discussed in the communication section to understand what underlying issues and data you are disagreeing over. It's perfectly acceptable for both of you to present the conflicting needs to your boss and explain you're not sure which takes priority for the company – but this is asking for clarification, not a decision on which of you is right. The only time when this is not the case is when there is a massively high cost of delay. If the company is about to go bust in two days then any decision is better than no decision, and a fast decision is better than a slow decision.

Most court cases demonstrate the foolishness of an appeal to authority. Normally no party gets the result they want, and the costs in time and money are high. Almost every dispute is better for the participants if settled before going into a court and having a judge or tribunal decide. Negotiated settlements tend to work better and end up cheaper.

The second way of giving up is just literally that – to disengage. 'I don't care. It's impossible to work with this person, I'm just going to go along with his idiotic plan and watch everything collapse around me.'

It's very tempting. We've all been there. But really it's just as unhelpful as throwing a tantrum is – in fact, possibly less helpful, because at least the tantrum provides strong clues about what someone is thinking!

Of course if you realise half way through that you are wrong or you've been persuaded, then withdraw at once. Don't fight on out of some weird misplaced obstinacy! Most people admire and respect individuals who are able to honestly and openly admit when they've changed their minds or been convinced. A further benefit is that it means your opponent is more likely to admit when he or she is in the wrong as well.

A bit less extreme than just outright giving up, avoidance techniques are employed by all of us occasionally. Unfortunately, 'avoided' conflicts don't go away, and in fact often return worse than before. At least – if you still need to have any kind of working relationship with someone.

A classic avoidance technique is to pass the buck. Rather than taking the problem to your boss, many people opt for death by committee. 'That's certainly an option,' they say. 'Let's ask the process management improvement taskforce to consider it'. This is just making extra work for someone else. The originator of the idea will still feel angry and not want to collaborate in the future, while any actual value in the idea will be lost. Any kind of insincere promise – 'I'll look into it' or 'let's get back to that later' – is just as effective at killing an individual's desire to collaborate with you. It's perfectly acceptable to stress that you don't have time to discuss that idea right now, but then offer a later opportunity to explore the idea and keep to your promise.

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### **Activity 9: The apocalypse now**

This is a group activity designed to see how you manage intellectual disagreement (warning – some people can get very emotional as well!) and are able to come to a decision. It takes 15 minutes to carry out and then 15 minutes to discuss what went on.

**Scenario:**

An all out nuclear war has wiped out all of the earth's major countries. Only 9 people have survived – they are the ones who were lucky enough to live near to a nuclear bunker and have reached it in time. There is a faint possibility that there may be other survivors in New Zealand but this is – quite literally – on the other side of the world.

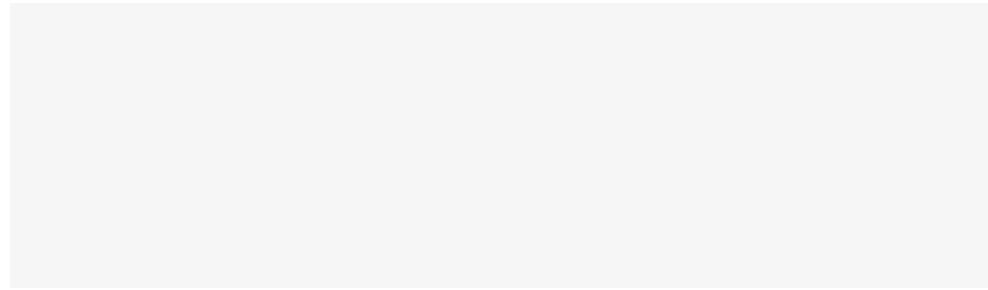
There are seeds, unlimited clean water, food stores for 5 years, a hydroponics system, a medical centre (with no surgical instruments but plenty of drugs) and some clothes and books.

The nuclear winter will probably last for 10 years. The problem is that none of you will live to see that day since food supplies and the food grown hydroponically will only last for 5 years. In order for some of you to live to see the end of the nuclear winter, at least 5 people must leave the bunker now. They will face a lonely, painful death from radiation sickness.

You have 15 minutes to agree who will go.

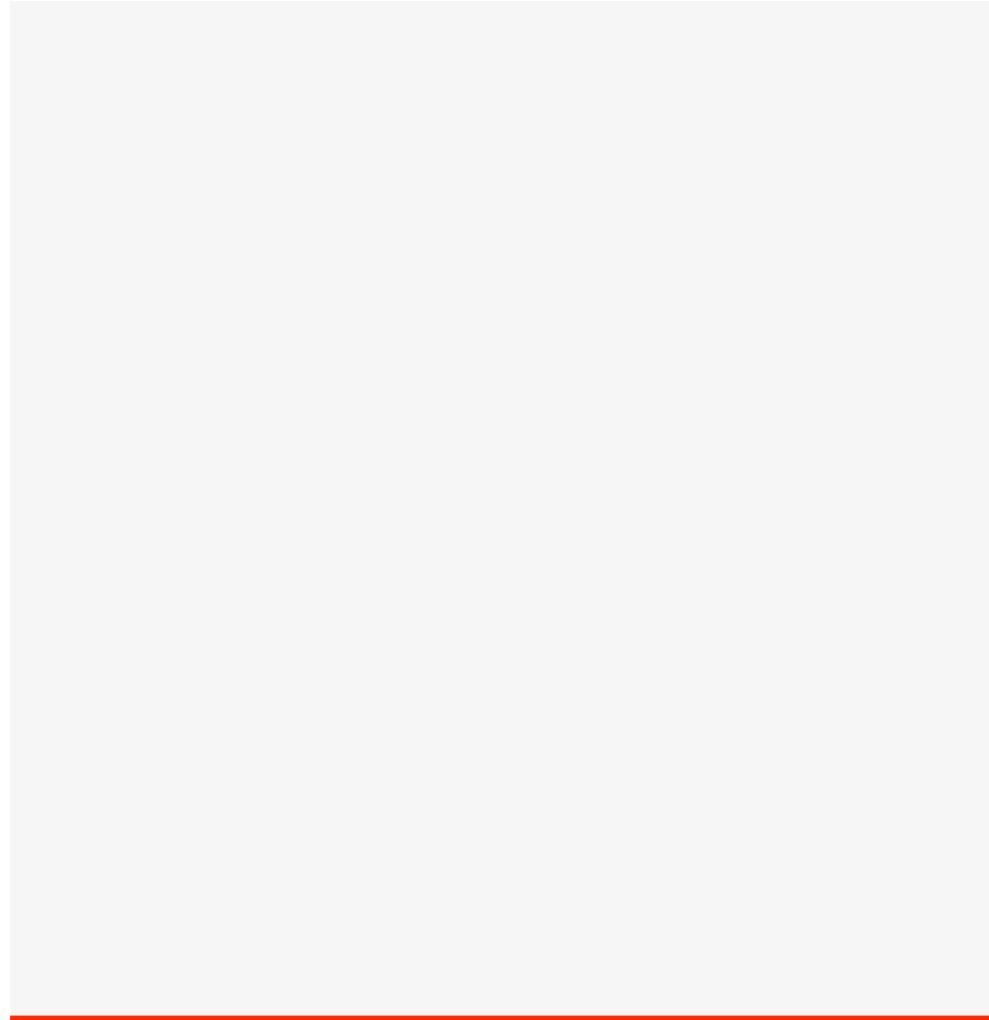
The people in the bunker are:

a female doctor; a male biologist; a pregnant woman; an SAS army officer with post-traumatic stress disorder; an elderly lady of 80; an opera singer; a disabled lawyer; a priest who specialises in conflict resolution; a farmer who admits he has a drug addiction.

**Discussion:**

After you have made your decision, you should take a further 15 minutes to reflect on the process. Here are a few questions to help get the discussion going:

Ask yourselves what criteria you established that provided the framework for your decisions. How soon did these come out? How well did you communicate? Did any leaders emerge? Were people open to alternative points of view? How was a unanimous decision reached?



## Coordination

### Diary

The most basic, but easily the most useful coordination tool, is the diary. Most organisations use a shared calendar to make it easy to know what people are doing and when they are busy. You can send invitations and check that your meeting does not conflict with previous appointments.

As with any tool, this is only really useful if people stick to it! If someone has a personal, paper diary into which they put all their real appointments, then the shared one will become a distraction. You won't know when your colleague is actually off to the dentist which will waste your own time. Find a calendar that works for most people and make it easy to use, investing the time to ensure people know how to use it and synchronise it to their handheld devices, for example.

### Reviews

Informal and formal reviews allow individuals to update one another on progress. The informal review can be as simple as asking how the project is going while you make coffee, while the formal review is a good opportunity to ask the kind of questions that often don't get brought up – are you happy here? what personal goals do you want to set yourself?

People need these opportunities to talk about larger issues. In the stress of day-to-day business it can be hard to bring them up naturally, so a set opportunity where people know such questions can be raised can be very useful. You should beware of making them too frequent, however. It's easy for managers to eat up two or three days of the week in having 'one-to-ones' with their direct reports. This is not always the most valuable use of time. If much of the information is a progress report, for example, then a demonstration or an email might be both more effective and efficient.

### Interruptions

You are working away on the spreadsheet that calculates the business case and Mandy drops by to ask how you are. Fine, you respond – but busy. She takes the hint and walks off. Two minutes later, Fred calls out 'hey where did you file last month's report?' You smile through gritted teeth: 'in the monthly report file where they always are'. Then your boss walks in. 'Got a minute?', he asks breezily and your heart sinks, because what he really means is 'got half an hour to listen to me talk through my ideas?'.

Sound familiar? While informal communication has some major benefits it also has some costs. Interrupts can have a heavy impact on productivity by switching us out of our task focus or state of ‘flow’ meaning we find it hard to get back to where we were. Even worse, if you really don’t have time for the interruption but allow it anyway you will not listen to what the person is saying – it’s much better to be honest and ask if you can call back later. Of course, you have to fulfil that commitment!



Figure 22. Interruptions are the enemy of work

A classic coordination technique is to have set times or occasions on which people can be interrupted. You could choose a signal that others have to respect – if you are wearing a ‘cap’ it means you’re really busy and shouldn’t be disturbed, for example. If you have an office you could simply close the door as a sign you need to work alone. Perhaps as a team you decide that 9am to 1pm is a no-interrupt time. During these hours phones automatically go to voicemail and email alerts are switched off. Some remote working tools have digital ‘busy’ status or signs that signal to others you should not be contacted unless the matter is really urgent. Some can even signal what you are working on – something which can assist coordination.

What works for you depends on your type of work and how you interact with others, but it is definitely a discussion worth having if you find that interrupts are affecting how you work. Whatever technique you use, you must respect it. That means not putting on your busy signal all the time, for example – people have to be able to interrupt you sometimes! It also means looking for yourself for a document or piece of work before you decide to ask someone else.

The basic rules of an interrupt are:

- Don't be lazy – could you get this information easily by looking it up? If so, don't interrupt someone else.
- Can several people answer your query? If so pick the person who is not signalling busy.
- Does the question need a quick yes or no answer? If that's all that is needed and the matter is not urgent, then save up a few until a good moment.
- Are you and the work in general completely blocked unless you have input from one particular person? Is the issue important? If so – interrupt!

## Maker's schedule vs manager's schedule

Paul Graham – the entrepreneur and hacker who runs Y Combinator – makes an interesting distinction between a maker's and manager's schedule, pointing out that meetings and interrupts have different costs for different people.

Traditional diaries divide the day into 1-hour blocks of time. It's pretty rare to see manager's block out whole half-days and days. They're used to dividing up their time into chunks and using that in meetings or specific tasks. There is a low cost in switching from a meeting about new customer acquisition to a demonstration on the latest software.

But for programmers, writers and designers (people doing a job Graham describes as making), a schedule is rather different. Because these jobs often require being in a state of flow – something which may require a good half hour before it's achieved – an interrupt can prove truly disruptive. If a meeting is scheduled at 3pm, then a maker won't really start anything after lunch, nor will he get back to anything after the meeting ends at 4pm – that's half a day wasted. The meeting may have been important, valuable even, but its timing has also produced a heavy cost.

The real trouble with this is that managers tend to be more senior. Thus they set the meeting schedule for the company, interrupting makers' timing and impacting on productivity in a way that they do not appreciate. When this is understood, managers can be more sensitive and work around it – perhaps meetings that involve makers can take place at the beginning or the end of the day, or on a set cadence, once a fortnight.

It may be the real reason behind the odd schedules beloved of so many programmers. Paul Graham recalls writing code from dinner until 3am – safe in the knowledge that no one would disturb him at night. He'd then get into the office at 11am and do 'business stuff' in the day. He was effectively fitting both maker and manager schedules into a single day. Entrepreneurs run themselves hard, but few programmers will do the same for extended periods – it's better to create a schedule that works for them.

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## **Activity 10: Protect the flow**

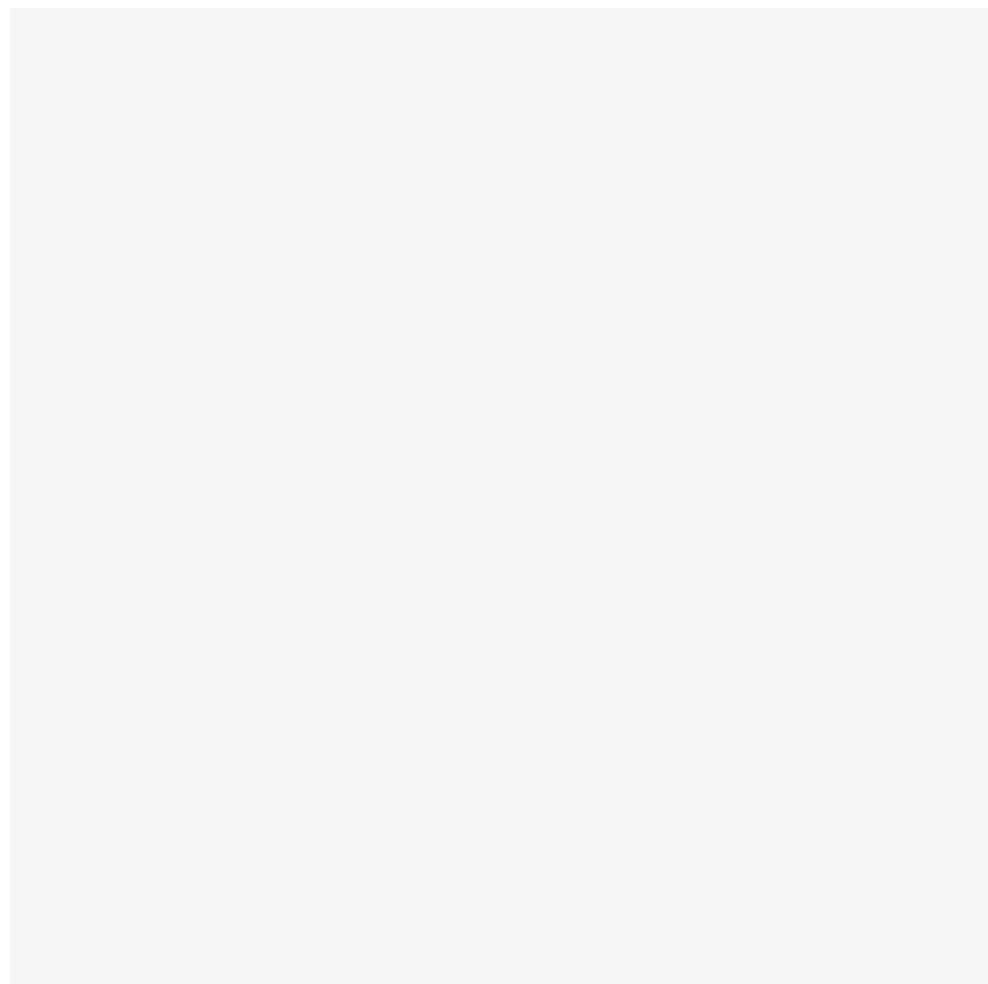
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This is an activity to discuss and then implement with your team.

Discuss the content of this section with them and then ask how you might manage the schedule to permit those who need a period of uninterrupted time.

- What might this look like?
- Will it include switching off email alerts and phones?
- How will you signal to others that you are not to be interrupted?
- How will you manage exceptions?
- How will you prove to others that you will answer queries outside of the no-interrupt zone?

Now try the policy out for 2 weeks before discussing how people felt about it. Make sure you check with those who occasionally wanted to interrupt as well as those who enjoyed not being interrupted. Are there any changes or improvements that you could make to the policy? Why not go ahead and make them and keep this as part of the workplace environment?



## 4.2. Teams

### Communication

We've said that informal, ad hoc face-to-face communication is ideal within a team, always providing we don't do too much of it to stop work being done (see the Interruptions section above). But this is insufficient on its own. Sometimes we need records of what we've discussed and agreed, or tools that will help us enrich our communication. We've been through many of those tools already - from email and task boards to shared internal social media chat and searchable resource systems.

Easily the most important tool used to communicate (and collaborate) in a team however, is a meeting. They are so important that we shall devote this section to discussing how to run them well.

Sometimes loved, often hated – for most of us meetings take up a significant portion of our working week. So how can you run a great meeting that people find useful and which helps progress your work?

### Effective meetings



Figure 23. Cost calculator shows how much money you're wasting in meetings

- Take responsibility for your own meeting. If you are calling a meeting then there should be a reason behind it – what do you want to achieve, why do people need to attend it as opposed to offering input in some other way?
- Structure the meeting properly by setting out at the beginning what you expect – is this an update, are you making a decision, choosing an action, collaborating to create something? State this to all attendees up front and then ensure that you come out of the meeting with that result. Meetings should result in action.
- The agenda is a useful tool for this because by formally laying out what will be discussed in the meeting it can help stop unstructured meetings that go on for ages and accomplish little. Apportion time to the agenda in advance – this stops the meeting being hijacked by a single subject. You can draw a discussion to a close, saying that it obviously needs further work that must be done at another time.

- It is tempting to circulate pre-reading material to ensure that the meeting does not need to begin with a recap of the data for everyone. Tempting, but often doomed since half the people won't read it and then will need a recap which will infuriate those who did read it. If you are very determined then you can enforce pre-reading by the simple expedient of asking anyone who has not read the material to leave. While this will normally make people behave better the next time, it may defeat the purpose of the initial meeting by excluding those who can help make the decision.
- If pre-work has been promised and not done, however, this should be called out. Delete that particular item from the agenda and move on.
- Be careful whom you invite. Lots of people go along to meetings 'just in case they miss something'. They sit there – bored, contributing no value, and wasting their own time. Some of these people will disrupt the meeting with long speeches of their own just for something to do. Find ways of disseminating information or decisions so that people don't have to attend. Keep your meeting to the minimum of those needed to bring about the desired result and add others with extreme caution. You do not need a voice on every subject, just the expert. Boardrooms are a classic example of how this goes wrong – a new advert is shown for information purposes and suddenly the Logistics Director and the CFO are experts on design and copywriting.
- Control the meeting. If this is your meeting then it is up to you to keep it under control. Sometimes one particular subject will spark a huge amount of debate – this may be really useful, but if the meeting has become two or three people arguing, then it needs to be reined in. Simply point out that the debate will happen better at another time and return to the agenda. If you are unsure if discussion is useful or not, then ask. 'Can I just check with everyone, is this something we should be discussing right now, or would it be better if a separate, perhaps smaller group met on this?'
- Expect punctuality. By fining people a small amount – to be used for biscuits at the next meeting – you make it clear that you value people's time.
- Schedule meetings wisely. As we've already discussed, be aware of how meetings can interrupt the day. Reduce transaction cost by having a regular cadence where people know when to expect a meeting and try to make sure they do not interrupt your makers too severely (or at least be aware of the cost).
- Time-box your meetings. This is a powerful technique but it is pointless if the only default box you use is one hour! What tends to happen is that people stretch out their discussions for 50 minutes and then there is a sudden rush to fit decisions into the last ten minutes. Don't be afraid to keep meetings really brief – the 15 minute stand-up is a classic example, but so are updates that managers deliberately keep to eight minutes to cut the waffle or whingeing. Similarly, if you need a long meeting for collaborative purposes then take the full four hours that a planning session requires, rather than spreading it out over four one-hour meetings.

- Use all the tools described above to manage good communication. Try to call people to account who flout these – whether it's rolling eyes while someone else is speaking or shouting over someone else. Don't let bad behaviour ruin the meeting, but also make it clear that dissent and challenge is valuable. There's nothing worse than a meeting where a set of actions is 'agreed', only for half the attendees to walk out and hold their own meeting around the coffee machine where they unofficially agree to ignore everything.
- Actions must be assigned to individuals or teams who take responsibility. Don't volunteer someone who's not there to do anything. Capture these actions and ensure they are followed up at the next meeting.
- If you need everybody to focus without running off to answer phones or deal with emergencies then you might consider off-site meetings.
- Get creative. Do not make all your meetings the same. If you always sit around a table and talk many people will switch off. Instead hold meetings around your work – whether that's a model, a site visit or a diagram. Put up posters or use some of the collaboration tools described below to help kickstart productive conversation.

## Collaboration

Parkinson's law of triviality states that the time spent on each item on the agenda will be in inverse proportion to the sum of money involved. He gives as an example that a team will spend more time approving the construction of a bike shed worth £350 than an atomic reactor for £10 million. Not every team task requires collaboration – this expensive way of working should be saved up for where it is needed. When it's good enough to coordinate the output of individuals or pairs who have been collaborating, then do that instead!

However, when you truly need the wider team – perhaps on product design or planning, as well as observing all the points we've raised in previous sections, here are some extra collaborative tools.

### Visual or physical tools

Human beings love playing with things. A presentation on a new product is nowhere near as effective as having some prototypes for people to play with – no matter how rough. When you can't have prototypes, let people have Post-its, pens and paper. The team huddles around the whiteboard or the flipchart, pointing and gesturing and leaping up to take the pen and add their own ideas. It gives people something concrete to focus on and a sense of shared ownership in the final product – whether that's a model or a plan. Below is a very brief selection of a few ideas that you could add to your repertoire when running a collaborative learning session.

**Mindmap** – A mindmap captures ideas and their relations to one another. Begin with a topic in the centre of the paper – it might be a problem, a task or a project. Around it, capture the major categories into which it breaks down. If our central topic was ‘VFQ session book’, for example, we might add ‘Research; Writing; Activities; Design; Customers; Printing; Marketing’ as categories. Now we could choose to go in-depth into each category, offering sub categories and using lines to illustrate connections as we split down to individual tasks.

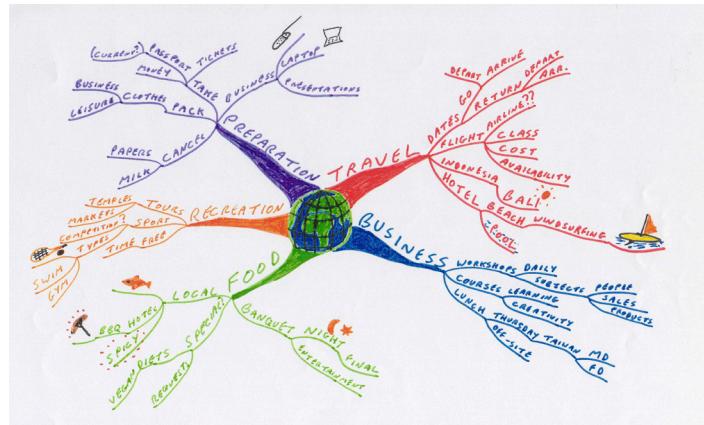


Figure 24. An example mind map – planning a business trip

This is a good technique to help structure a brainstorm. A different approach might be to begin by getting people to write down the tasks on sticky notes and then stick them onto the map as they are discussed.

**Framework or four box models** – A big empty sheet of paper on the wall can be intimidating. By providing a bit of help you focus people’s ideas and structure the brainstorm. They are useful for prioritising, analysing and exploring different possibilities. By using two different variables matched against one another, you get the classic x/y axis with four quadrants. You can call the result a model or ‘framework’ and try and charge someone for it.

Now you need to think about what variables are represented by each axis. For innovation ideas you might try a Hi/Lo Value on the x axis and a contrasting Hi/Lo Effort on the y axis. Other typical Hi/Lo ideas include about risk; Soon or Late; strategic fit; Quick or Slow...

Or you might label your quadrants with the classic SWOT: Strengths/Weaknesses/Opportunities/Threats if thinking about the company or the project as a whole.

When you have captured this large amount of information you can use sticky dots to get people to vote on the ideas they think should be prioritised. Or you can put similar ideas together or draw lines to connect linked ideas.

**Process/Flow/Network** – when trying to encourage systems thinking, mapping out the flow of an organisation or the value chain can be incredibly helpful. You can see how a product is developed and focus in on areas which are bottlenecks. When done as a team, it gives everyone an understanding of the whole and can galvanise efforts to change. If drawing a network of individuals or teams, use symbols drawn to a scale that represents the number of employees, size of revenue or equivalent to help see their relative influence. Map out the lines where people work directly and indirectly using different colours. It can draw attention to gaps in collaboration and where network improvements could help.

**Personas** – When creating customer segmentation drawing up personas and thinking about each ‘type’ of customer’s motivations and needs can prove very helpful. It can be fun for the whole team to find a photo of the ‘busy Mum’ or ‘inner geek’. Be careful though that these personas do not turn into stereotypes that either suggest you are mocking your customers or that you mistake them for real people. It is best when you are analysing real data and giving ‘names’ to groups who exhibit similar behaviour patterns or share socio-demographic characteristics.

It may help to decide on – and mark – key indicators: frequency of usage; average spend; length of time as a customer, etc.

**Time line** – A visual record of key decisions in your organisation or product can be a powerful tool to bring people together and act as a spur to share knowledge. It can act as a celebration and a review process (one that often has greater longevity than any formal report). Ask people to print out artefacts and images and bring them along. As always, prepare a large number yourself as well! Then use sticky tape to create a long horizontal line and begin marking dates and events as people stick up their images and recollections. You can have a range of stock images as well and ask people to select an image that represents certain points (try not to have too many images of people screaming or crying...)

**Customer journey** – The customer journey tool has been described in several places in VFQ. The only point to reiterate is that this is a useful shared visual tool for exploring the flow within a software product and identifying a first increment.

**Innovation games** – The VFQ material contains numerous activities which help teams to collaborate by playing a game which then leads on to thinking about the work itself. Use these with your team to help keep meetings lively, engaged and innovative. We also recommend searching the web frequently to pick up new ideas on ‘collaborative play’. Emergn use a range of different games with customers, depending on what the organisation is looking at: different games are useful for process, innovation or culture, for example. Many consultancies put examples of their games up for the community to use freely – just search for ‘innovation games’.

**Visioning** – Drawing or modelling can be an excellent way to get people to think about visions differently. If you ask people to draw the problem as a car and label the drawing you will get some odd looks, but if you persuade groups to continue then it’s astonishing how much information you can capture. What if our account security is the label we give to the airbag? Perhaps the development team see itself as the engine, while they label governance as the brakes? Things that could not otherwise be said emerge under the guise of humour.

Moodboards are traditionally used in marketing and advertising. They are helpful when trying to talk about how we might want a product to look or feel, or what our brand or customer or market segment is like, or how we envision the organisation’s future. Ask people to print out pictures of websites or pictures that stand for particular aspects of what the product should be. Bring these along to the meeting and also provide a stack of magazines and photos of your own. Now encourage people to turn back into children handing them glue, scissors and a large board. Get people to collect the images that offer a vision of their product, stick them on and then present the board back to you at the end.

If people get stuck you can help out with some questions. What kind of celebrity is most like your product? What car brand shares the same values and design cues? Which other brands remind you of how you want your product to look? Find a landscape that gives the same feeling as your product, etc.

If your team of cynical developers is resistant to any such creative gumph, reject magazines pictures and instead provide a large amount of Lego. Ask them to create Lego models of what the organisation will be like in five years time, or of a customer's worst nightmare with the product, or any other things you might want to explore. Lego, for some reason, has a high appeal in software.

### **The collaborative set-up**

Some elements of team collaboration depend on certain choices. In XP, for example, the team share ownership of the code. This means that anyone competent to do so is permitted to make changes, while anyone is allowed to examine the code.

This transparency can apply to other types of work as well – shared documents, all files kept in a central, accessible location, openness about finances, etc. How far the team wishes to go with this principle depends on the team and the organisation supporting it. In general, openness and transparency help collaboration. Be careful though that the ability to see what someone is doing on the shared document, for example, does not turn into an opportunity for control or micro-management. Control imposed from a third party inhibits collaborative working.

### **The retrospective**

Retrospectives are gaining ground amongst many teams, whether they follow Scrum or not. It is the ultimate collaborative team meeting since it requires teams to reflect on how they collaborate in order to improve.

Running a good retrospective requires following the guidelines suggested above for meetings in general. There are some specific extra suggestions for retrospectives as well.

Retrospectives are NOT:

- a whinge-session
- a further chance to discuss the work itself
- a bonding session to tell everyone how much you love them (or hate them)

Retrospectives ARE:

- a reflection on what went well, what didn't go well and what could be improved
- the meeting where two to three actions will be set that must be implemented in the next iteration

That final point is crucial. If a retrospective involves creating masses of suggestions that no one wants to take responsibility to implement then it's a waste of time. The aim is to enable continuous improvement as a team and to this end some improvements must actually be put in place.

Visual tools are highly recommended for retrospectives, especially those designed to keep energy levels and engagement high.

You could try a simple four box model:

- **Good:** point out things that went well and were successful. Perhaps you completed all the stories you committed to.
- **Bad:** point out the things that failed or went wrong. Perhaps the customer was disappointed at the demonstration.
- **Better:** decide on a couple of things you will do in order to improve on the points in the 'bad box'. Perhaps in the rush to complete the stories, quality slipped. The team will agree to try and include a smaller feedback loop to check on this.
- **Best:** this is a chance to celebrate and appreciate. Fred did a great job of spotting and fixing an error moments before the demo that would have REALLY annoyed the customer.

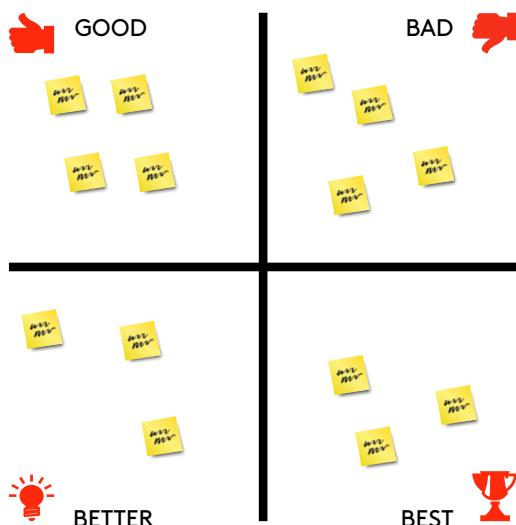


Figure 25. An example from a retrospective

There are plenty of other models and tools. One helpful suggestion is to label the boxes risks (things that could have gone wrong or that are still worrying the team), congratulations (things that should be celebrated), puzzles (tasks or points the team is not quite sure about) and wishes (things the team would like to happen). From these four boxes the team can decide on three actions to change in the next iteration.

Another recommended game is the 'Sailboat'. Draw a boat and label two forces: the wind pushing you forwards (things you did well) and anchors dragging you back (things that didn't go well). Prioritise which of the winds you will focus on continuing and which of the anchors you will try to haul up and get rid of.

## **Activity 11: Hollywood dreams**

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This is an activity that many teams find extremely difficult, but it can be very rewarding – and revealing.

You are going to film a retrospective and then play it back to the team. You're looking for information about the way you communicate together, how you handle dissent and frustration, how you build on one another's ideas and how you appear to one another. It can prove a very strange experience. You may believe that you are fully engaged and committed to the meeting – until you see yourself yawning on camera and checking your email on your phone. You may think that your points were concise and constructive until you actually time how long you are speaking for and see the wincing expression on a colleague's face. You may be certain you're a brilliant team until you notice only 3 people ever really talk or write out suggestions.

The exercise is not, of course, a witch-hunt to prove that you, or anyone else, is a bad communicator. But it does provide excellent, objective feedback on how you really work together. It can provide real data and actually make it easier for a colleague to point out how he felt when his idea was dismissed or he was interrupted. This can provide real impetus to change.

Discuss the idea with everyone in advance and explain the benefits. Make it clear that although you want them to permit the filming, no-one has to accept any feedback during the discussion if they don't want to. This makes it safer to participate. It works best in a small team. Don't allow any 'observers', although this kind of session can be worth asking for help from a skilled facilitator or coach if you have one.

Set up the camera in the corner of the room. At first people will be conscious of it so kick off with a lively activity discussing the iteration. Soon people should forget the camera is there as they begin to talk, write down suggestions and interact with whatever tool you are using. Let the discussion continue as it naturally would before bringing the session to a close. Then ask people to watch the footage and discuss what they notice about how you communicate and collaborate as a team. As always, end the discussion by deciding on specific actions you can use to improve.

If people want to, then you can repeat the exercise in a couple of iterations and see if anything has changed.

## Coordination

Coordinating work within the team is one of the key functions of many Agile practices and tools.

### Task boards

Whether using a full Kanban board or simply a 'ready, in progress, done' division, the task board is the most useful and typical way of coordinating work. It offers a single point of focus around which the team can hold a short daily stand-up meeting. It means that outsiders to the team can also check on progress without needing to interrupt anyone in their work, and it minimises the chance of tasks being forgotten or ignored.

Teams use various methods to indicate urgency, importance and any other details that may be needed.

If a card moves back and forth (returning to development because of bugs or incomplete design) this too can be marked in order to focus more attention on it.

The cards themselves can be simply a descriptive name. As the work becomes more complex, you may wish to add tracking numbers, date of entry, etc.

Individuals sometimes add an avatar onto the card to show who is working on it.

Distributed teams can use one of the many virtual task boards online. These allow people to create and move cards, just as they would on a physical task board. The team must be disciplined about using it if it is to keep work as visible as it would be were the board taking up a whole wall of the room you're sitting in.

### Planning meetings and just-in-time planning

In the days before mobile telephones, people would arrange exactly where to meet – under the clock on platform 1 at the train station at 10 o'clock. Today, people simply arrive and phone to ask 'where are you?'.

This is 'just-in-time' coordination; technology which allows us to respond to unforeseen issues, like a platform closure, or the clock being removed for repairs. It means that if a friend is running late we can head off to find a coffee rather than standing under the clock waiting in case we miss them. Some commentators have mentioned that allowing last-minute coordination has also encouraged us to be less punctual... but there's no tool human ingenuity can't find a way to abuse!

With teams it means we hold our planning meetings just before the iteration is due to begin. The plan is intended only to hold good for the length of the iteration and includes what we shall work on and its relative importance. The benefit is that the plan stays closer to a shifting reality and requires a lower overhead in terms of time.

The same holds true for modelling, fleshing out requirements and any other activity required for the iteration to begin – these should be carried out just in time.



Figure 26. Coordinating movements to tie your shoe laces

### Team rhythm

Establishing a common rhythm or cadence for the team helps keep coordination time and costs low. It's as simple as always knowing when a release is due (every other Tuesday), when the code is branched and cut (the Friday before), when demonstrations occur, when and where the planning meeting is held, etc.

These need to be coordinated for the other stakeholders involved – business sponsors and managers. Be firm about refusing to allow the meetings or events to move 'just this once' and make clear to whoever is requesting the move that chopping and changing the schedule impacts on the team's productivity.

## 4.3. Crowds

At scale, all three fundamentals of interaction are much harder. Large numbers of people, lots of teams, many departments, suppliers or companies... all these make a situation more complex and thus harder to manage. Of course, scale of people usually exists for a reason – scale of problem. So if you have lots of teams then you probably also have complex problems with high numbers of dependencies.

**COMPLEXITY MODEL**

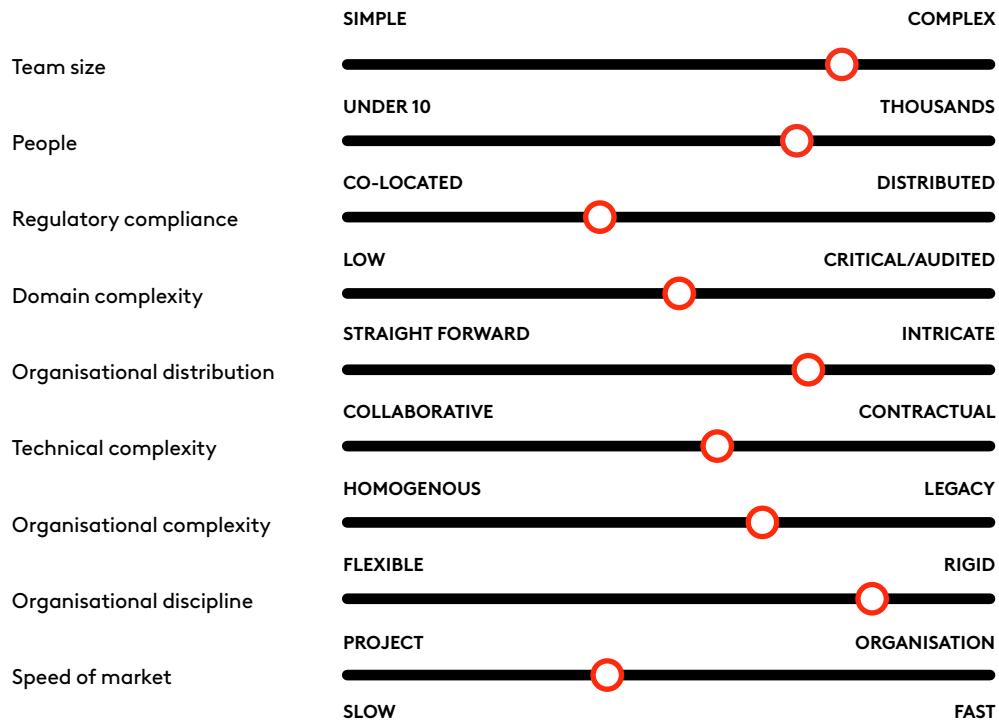


Figure 27. As the context moves towards the right on each measure, the situation becomes more complex

A lot of how you manage the communication, collaboration and coordination within such complex situations depends on how you set up both the work and the organisation to handle the work.

There are various 'models' which attempt to help with this. The Scaled Agile Framework (SAFe) is one such example. It is in essence a hierarchy with lateral connections – nested goals, nested teams, multi-level plan and work breakdown. Although in essence a 'hybrid' style of management between autonomous teams and a structured hierarchy, it suffers from the same difficulties as a traditional hierarchies, permitting disconnects and information decay.

We offer a case study on Spotify below as an example of how organisational structure can promote communication, collaboration and coordination. David Anderson, rather mischievously, said he saw few differences between Spotify's structure and Microsoft's – except for trendier labels. The difference is one of attitude – and no model can fix the essential difficulty for you.

Working effectively at scale requires breaking down the dependencies and making teams independent of one another as much as possible. To support this you need transparency and excellent data access to enable those on the ground to make the best decisions. You also need system level decision-making that supports collaboration and which offers the correct goals.

## Communication

When kings used to address their troops before going into battle, their words were sometimes written down and embellished by poets. But no matter how stirring the words exhorting men to 'stiffen the sinews', in reality, only the front rows of troops would have heard a word. Instead, for Napoleon's army of 674,000 men, the armies used sergeants selected for the volume of their shouts, drummers and trumpets to sound the retreat and charge. The 'pas de charge' to which the Napoleonic Army advanced was so feared that enemy troops broke and ran on simply hearing the distinctive beat.

The era of mass communication means that CEOs no longer need rely on a powerful pair of lungs to get their message to all employees. Broadcasting allows an individual to send a message to millions. We can record videos and disseminate on the web, we can send emails, put up web pages or newsletters, or even plaster the office with banners and posters.

The issue remains, however, how to know if anyone is actually attending. Just because someone can watch our message, doesn't mean they will. These are all 'push' notifications, not really very far removed from the old 'office memo'. They can also feel impersonal – fine if you are simply providing information, but less useful if you want to ensure a deeper engagement.

That's why many huge 'company announcements' are still made in a relatively old-fashioned way – albeit with help of new technology. When Boots plc told 900 staff they would be made redundant, everyone gathered at the huge headquarters atrium to hear the CEO on microphone broadcast to several large video screens.

Essentially, we will agree to listen to CEOs (or pop stars), but our engagement drops for others. We get annoyed by the ubiquity of messages sent to 'All Users' and infuriated by those who respond with a 'Reply All', because these clutter up our inbox with information that feels irrelevant to us. The cost of keeping up with what's happening on the company's Facebook page, Twitter account and the internal communications becomes too high.

### What are the answers?

The first is to focus on subscription. Things that we sign up to receive do not annoy us. Companies do this with customers, but they can also do it internally. We can sign up to read about innovation projects or legislation changes or whatever is of particular interest. General company news can be kept short and punchy allowing readers to click through on subjects they are interested in – just as would be recommended in a customer newsletter.



The second help is to store the information and make it easily searchable. Social media tools including Yammer, Lync, SharePoint, etc., all rely on using tagging, hashtags and keyword search to make the information accessible at the point of need. You may not have been interested in the marketing bulletin in February, but now you are thinking about the PR for your own product it suddenly seems more relevant.

When deeper engagement is needed, old-fashioned ideas continue to have relevance. There is no lack of popularity for conferences, workshops and exhibitions. Industry segments, professions, academics, politicians and others use them because of their ability to combine broadcast communication (lectures and talks, which may be recorded) with high engagement (panels, question and answer sessions) and ad hoc networking sessions in between.

### Information radiators

A slightly over-fancy name, information radiators offer enough information to get a wider audience up to speed on a topic. They might show the vision, the goal, a project overview or useful information including 'flowzone' times so that people walking in know not to disturb people at work.

Charts recording progress can also be helpful to communicate to those outside as well as inside the team. A ranged burndown chart keeps people aware not only of progress made with stories, but also how much new work has been added. Cumulative flow diagrams (CFDs) can also offer information but may need more interpretation to be useful for instant communication.

## All hands meetings

In most companies these meetings are convened to share startling pieces of information – from celebrating a takeover to announcing a bankruptcy. In a company of any size it is hard to make them collaborative, the idea is more to disseminate and then process information. After an address from someone (usually someone senior), the company may split into smaller groups in order to do something with that information – considering what it might mean for a specific workflow, team or department, perhaps.

This is one of the few occasions when professional facilitators can be justified. There is often a lack of cost sensitivity and a need for someone less involved in the emotional impact of the announcement.

## Collaboration

Collaboration in really enormous groups is very difficult. A large gathering almost immediately breaks down into a series of sub-groups, whether formally or informally. The sub-groups then rely on coordination or formal networks that assist collaboration between two or three groups.

Think of a Hackathon or a similar kind of large ‘innovation day’ or Kaizen improvement event. While the whole company, or even groups from many companies might be present, people will break into small groups in order to start creating something or working on ideas. The groups may break up and reform from time to time, as one person decides to move on to somewhere else, but the overall effect is not mass collaboration. Later, individuals may vote for ideas or projects –this is essentially a coordination conclusion to small team collaboration.

Many scientists essentially work in an informal network of collaboration as they try to solve large problems such as ‘cure cancer’ or ‘discover the Higgs-Boson’. While individual teams conduct their own experiments and research (and are fiercely competitive for both the kudos and funding that accompanies success), the results tend to be freely shared to allow other teams to replicate and build on them. Peer-reviewed, published journals and academic conferences tend to be the main source of communication and material for collaboration. Individual labs, scientists and universities may also collaborate formally or informally beyond this.



Figure 28. A university’s impressive selection of scientific journals (image by Vmenkov)

Since sharing the data is beneficial to discoveries in science, it needs to be made beneficial for individuals as well. That's one reason why governments try to offer some protection through patents and centralised funding to encourage an environment in which it is safe to share results. It is by no means a perfect process – Watson and Crick essentially stole Rosalind Franklin's work in order to move forward with their own research on DNA!

Thus as well as considering tools and processes to encourage network-wide collaboration, it's important for organisations to invest time in how they support and set up the environment that encourages this much broader goal.

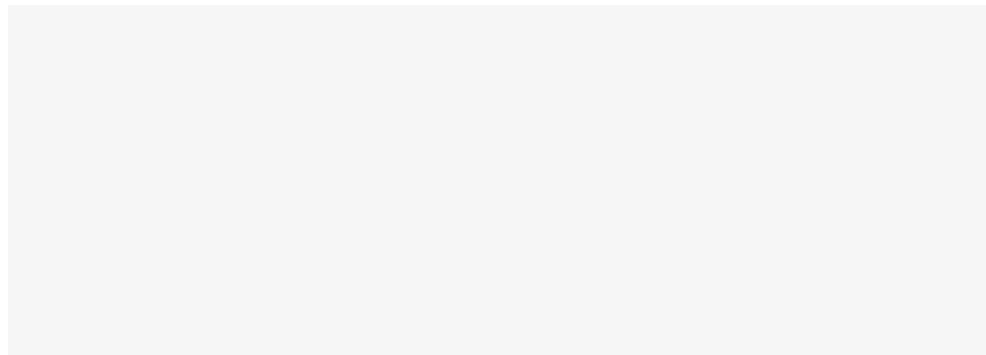
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### **Activity 12: Impress me!**

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This is an entertaining activity to demonstrate the difficulty but also the self-organising power of large groups. We have seen it played successfully with over 100 people.

The group is told that they have a single task: to impress the facilitator. The facilitator will put on headphones and a blindfold for the next 5 minutes. At the end of that time the entire group must have agreed and achieved something that will impress her. The facilitator will take off the headphones and blindfold, observe the result and say whether or not she is impressed.



#### **Commentary:**

At first, this activity tends to be chaotic as several people emerge as 'leaders' and competing ideas are evaluated and built on. The tight time constraint means people have to align behind an idea (even one they don't like) quickly. Any sub-teams (we've seen people stack up chairs to create the facilitator's name or write a poem in her praise) will naturally require coordinators to move between them. The amazing thing is that most groups – even of complete strangers – manage to produce something funny and inventive which genuinely impresses the facilitator.

Afterwards, the group can offer suggestions as to what was easy and hard and reflect on the roles individuals fell into or adopted.

## Map and evaluate the network

This can be helpful for an individual, a team or an organisation to discover where resources should be invested for collaboration.

Begin by drawing out all the different roles, processes or parties that your team needs to interact with. Try to graphically represent the strength of the dependency, collaboration or communication lines between you. Consider which ones you have strong relationships with and how these are cultivated.

This helps to show gaps where it is worth investing time to build contacts and relationships. It might also show where there are individuals who span different boundaries – ‘bridges’ as network geeks like to call them. These people can often unlock collaboration opportunities most effectively.

Remember, many ‘weak’ ties permit you to grow the breadth and size of the network, but as soon as you wish to turn these contacts into collaborative relationships, selective points need to be turned into ‘strong’ ties.

## Encouraging the network



Figure 29. A day out of the office for team bonding!

Companies run various events from away days to innovation days – a chance for people to work in small teams (either self selected or imposed to encourage the network effects identified as necessary) and then celebrate as well. When done with a structured goal of encouraging the network as required, they can be very successful.

Individuals from projects can also act as ambassadors, travelling to other teams or business units to make contacts and share ideas.

## Leveraging

Your company undoubtedly has numerous assets and experts whom you will need at various points. Working collaboratively with these is normally about setting up occasional meetings with the appropriate teams at the right point in your project to see what of the existing infrastructure your project can leverage and enhance. That these meetings are welcomed is normally a case of ensuring the company recognises the value and therefore promotes collaboration.

The company may also find it worthwhile investing more formally in a shared repository of assets or content – from tools to images. This can cut down enormously on the amount of time that must be spent calling up someone in marketing to ask for the latest product copy or HR to ask for up-to-date organisation charts for a presentation.

## Workplace environment

A small group of people will find a way to meet – cafes; huddled around boards; by the watercooler. But with large groups of people or numerous teams, organisations often have to pay rather more attention to layout and design of the workplace in order to maximise serendipitous meetings and collaboration opportunities.

Jonah Lehrer in his book *Imagine*, describes the exceptionally close creative relationship that Pixar developed between artists and computer engineers. This collaboration proved the powerhouse behind Pixar's creative and commercial success. Maintaining it involved making many decisions that at the time might have seemed difficult. They ignored Hollywood advice on how to set up production companies and creative teams, and they ignored financial advice on the kind of building they should create as an office.

Everything about the layout they chose was designed to improve collaboration for large groups of people. At the building's centre was a single, vast atrium intended to encourage people to interact. The risk is that such spaces can become a place people simply walk through, so Steve Jobs designed reasons why employees would have to go there. Mailboxes, a café, gift shop and meeting rooms were all placed there. But the design still didn't enforce sufficient community – eventually the team decided to move all of the bathrooms to this one space. This now became the only location for bathroom facilities in the whole building! Instead of the convenience of a washroom on every floor or near every workspace, every worker would have to walk to the central area... It meant people had to walk through the same space and therefore that serendipitous casual encounters became the norm.

Pixar backs up this concept with a range of bars for evening socialising, a gym to exercise in and classes at 'Pixar University' free for all employees. It's a lot of investment, but these social spaces and activities are not seen as 'perks', rather these are the spaces in which collaboration can occur, in which creativity is sparked and unexpected interactions produce great results.

These interactions need to happen at scale, not just within a team, because evidence suggests that really large groups of people can encourage extra creativity and productivity – not because all 200 will be working together, but because within the 200 are three who need the chance to come together. This

is what lies behind the strange ‘superlinear scaling’ of cities. This theory explains why as cities get larger, the people within them become more productive – from generating more trademarks and patents per person to supporting more restaurants and cafes per person!

The problem is that the opposite is true in companies – the larger a company gets, the lower its productivity per employee. Various author have speculated that this is because the formal structures or hierarchies created in companies inhibit collaboration and interaction.

The layout of a building or how teams sit can be a major part of making collaboration happen naturally across formal structures. These casual interactions are more powerful for enabling creativity than any number of cross-functional workgroups, committees or strategy boards set up with formal aims for the same thing.

## Coordination

In order to permit small groups of relatively autonomous, self-organising teams to coordinate well together, you need to spend some time thinking about enabling all the ways they might interact and actually clarifying these. It is not that you need a completely formal structure – over time teams will create their own (just as the group in the previous activity did), but the process of doing so can be a difficult one. You can certainly provide a head start.

On a very large project, many teams will need to work together; within an organisation a single project team may also need to coordinate activities with governance or PMO, reuse engineers, enterprise architects, particular experts and specialists (such as technical writers, database, UX, QA, etc), and marketing or finance departments.

### Structuring for coordination

To assist complex interactions it can be useful to make clear responsibilities, decision-makers and boundaries. Who needs to see a demonstration before something is released? When two component teams have conflicting priorities how will the business decide which is more valuable overall?

A framework that clarifies such decisions is helpful. But what about when you begin creating multiple layers with lines indicating authority and communication paths? Isn’t that exactly the rigid structure that we have criticised for making decisions slower and concentrating information in an up and down, rather than lateral direction?

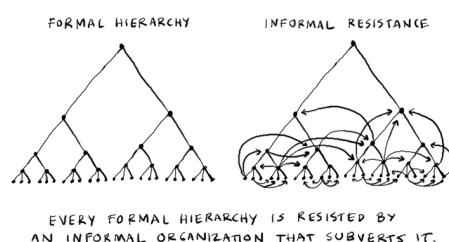


Figure 30. Organisms are open systems and control themselves (images by Dave Gray, Author of The Connected Company)

You must walk a difficult line between creating an overly rigid structure which cannot naturally evolve, and leaving things so unstructured that time and energy is wasted fighting over who approves which piece of work. This balancing act includes the ability to manage exceptions to guidelines and templates and how to escalate problems (including formal negotiations, but remembering to avoid wasteful appeals to authority!).

We've described the formal structures that Agile organisations use at scale in the Optimising Flow session. The principle of aligning team goals to release goals to product goals and finally to portfolio and organisational goals is readily understood. How many structures are required within this depends upon your unique context. At the least, a level of planning is required to coordinate what is done within each release and which team will work on which element. Within this there may be stringent parameters, standards or frameworks, which are all designed to make coordination simpler.

Facebook, for example, has an exceptionally tightly-run release schedule and heavily automated infrastructure to support its releases. The policies and procedures that surround it have been built up because of experience over the years. A developer who has a piece of code due to go out in the push must sign in to prove he is watching his release go out. If he does not sign in, it won't be merged with that release. The inflexible process is designed to make real the accountability demanded of individuals for their code.

### Creating sub-teams

The most important structure when coordinating output continues to happen at the team level: both how to split the work into discrete chunks and which type of team to use.

The two types of sub-team in large projects are the feature team and the component team. Feature teams each deliver a slice of end-to-end functionality and work in parallel, integrating the code with each other in the codebase as they go. In general, feature teams work best on small to medium-sized projects.

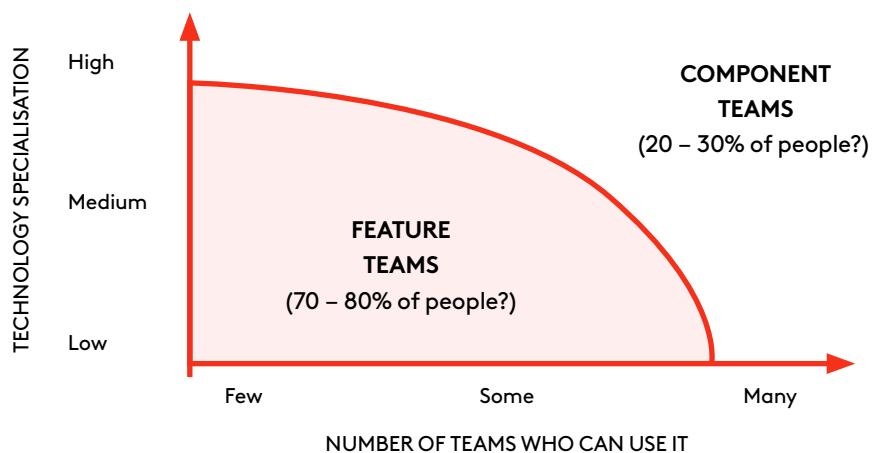


Figure 31. Feature teams vs component teams discriminator

The more complex and larger the project, the more likely it is that several elements will need to be built before functionality can be developed and this often drives the use of component teams. Rather than having everyone working on their 'bit' of the security framework or business service, a team might be tasked with developing the necessary (and minimum) functionality for a component – while still delivering a working solution each increment. Naturally, component teams require slightly more upfront understanding of the architecture as well as more ingenious design of the increments.

If many teams are reliant on a single component, this is sometimes developed as internal open-source. That way the dependent teams can develop the particular elements of functionality they require within the open-source.

### Connecting to other teams

When writing a piece of functionality it is possible that parts in another component might not yet be working. Perhaps another team is due to deliver some functionality or a service. In this case, the team can mock up the missing element. When dealing with other systems, a stub can be created.

In either case, the risk must be actively acknowledged and managed in the event that the missing piece may be delivered late (or may even not be delivered at all). There is no point in marking a piece of work as 'complete' if it contains a dependency upon another, perhaps missing, piece of work.

### Common ground

We discussed earlier how standards could make coordination easier. This becomes even more true at larger scale. The organisation would normally expect to have common templates for documentation and other assets, and common guidelines on technologies, infrastructure and reporting. This helps keep people aligned and assists with a common vocabulary. Exceptions should be permitted, but only with a valid business case that specifically takes future complexity into account.

### Coordinating plans

Most organisations produce several artefacts and plans which are designed to assist high-level organisation. Strangely, many do not make these available, so that individuals or teams have little understanding of why decisions are made. If making decisions themselves, it shouldn't surprise anyone if they then choose wrongly. It is less that teams fail to see the big picture, and more that the picture is deliberately hidden from them.



Figure 32. These are not the plans you are looking for

Most projects have a roadmap that presents the vision and significant milestones at a high level. Each project should also have a solution plan and release plan to help coordinate activities and offer an overview of the operations. Most business units will also have a portfolio plan showing the different projects, their rate of progress, anticipated value and relative risk – this should equate to funding decisions.

To be helpful, the plans must be updated frequently to reflect the changing realities of progress, market conditions and strategic decisions. If they are created and then wheeled out only at annual presentations, they are simply a waste of time.

### **Coordination meetings**

A popular, and simple coordination meeting is often done by a single person from each sub-team attending a short stand-up with someone from each of the other sub-teams. When bringing together a number of Scrum teams for example, this is sometimes known as a 'Scrum of Scrums'. The theory is that this helps coordinate the areas of overlap and encourages improved collaboration.

The person chosen should be able to explain what is happening in the team's work at that particular time and this choice probably depends on which areas of collaboration the teams are looking for – during the latter phases someone whose expertise is in testing might be more useful, for example. It is also an opportunity to raise problems that might affect significant numbers of those present and find who will be able to help resolve it. It should be a method for enabling collaboration between teams.

While Ken Schwaber recommends daily meetings time-boxed to 15 minutes, given that individuals might be coming from over a site or large building, it is sometimes more practical to have meetings twice a week for 30 minutes. Mike Cohn suggests asking the following four questions:

1. What has your team done since we last met?
2. What will your team do before we meet again?
3. Is anything slowing your team down or getting in their way?
4. Are you about to put something in another team's way?

The final question can provide an excellent early warning system for changes that risk causing disruption to others' work. Problems, issues and warning can be tracked on a wiki that is publicly accessible to all teams.

The issue is that this meeting can simply degenerate into a status update – something Agile teams try to avoid as it is inherently wasteful. There's no guarantee the necessary information is shared or that opportunities for collaboration occur because the meeting does not explicitly seek these. At large sizes, they become unfocused and woolly, but kept small you risk excluding the crucial connection between two teams who are in a differing Scrum of Scrums.

To improve them, you can consider bringing teams together around different specialisms or customer needs: one for BAs, one for 'loans' or 'mortgages', etc. You can also make explicit the aim that, as well as imparting information, individuals are expected to bring requests: 'we need help on our database connection'.

Such groups might sometimes be given rather more grandiose titles: steering committees. Their aim is to make decisions about strategic projects – often which areas a company should invest in or new directions to consider. Beloved by government and local authorities, they report on a wide range of ‘high-level topics’, from executive pay to corporate responsibility or new technologies.

To do this, such groups tend to be cross-functional, stretching across the organisation and expecting individual teams or projects to submit changes to them, or at the very least be guided by their expertise gained through research and discussion.

The danger is that they are often overly senior in make up and divorced from the work on the ground. If the information they have gathered and considered is not properly disseminated to others, the work they have done is often wasted. Even with excellent communication, there remains a strong risk that the group’s excellent thinking on specific technologies the organisation should invest in does not match the actual and urgent need of Team A working on a product due to launch in three months. There is often a lack of clarity on whether the steering committee’s ideas must be adopted, should only be considered or can simply be ignored.

Organisations can improve their performance by thinking hard about what they want the outcome to be, by keeping the committees composed of those doing the work, as well as senior people, and by thinking hard about how broad they should be.

How complicated you make these cross-connections is up to you. Spotify – explored in more detail in the case study below – make individuals members of differing groups in order to create a formalised network of weak and strong ties aligned around the organisation’s needs and customer opportunities. You need to balance the potential benefits of increasing the likelihood of collaboration and improved coordination with the cost – in time – of holding different meetings.

### Coordination specialists

The more people or teams involved, the more time needs to be spent coordinating activities. Some experts recommend appointing people with a specific role to manage coordination – a project manager, a systems architect, a head of user experience, etc. The advantage is that this keeps matters clear and permits specialisation within a particular area. The disadvantage is that it risks relieving the teams of the responsibility for considering how their work affects others.

At scale, this often means having specific members of a ‘release team’ whose job is to coordinate the features and components produced by teams. They ensure, for example, that the UI is the same across all teams to avoid any future integration or flexibility issues. They also coordinate the deployment, usually on a set cadence and with strict standards to which the teams must adhere.

Eventually, as we add in layers, where an individual team has to seek decisions or permission from the systems architect, for example, the organisation falls back into the old traditional trap of centralisation, with all the top-heavy cost and time that it can entail.

Always be conscious that any coordination role, layer or structure risks introducing waste in spite of the fact that its purpose is to reduce duplicated or misaligned efforts. The Scaled Agile Framework insists that all centralised coordination must provide 'just the right amount' of guidance and no more. Such a light touch is easier to describe than get right. The aim of any central body must be to keep its role as small as possible – sadly, as we know, bloated bureaucracies are all too easy to establish!

### CASE STUDY: Spotify



### Spotify

Spotify has launched a highly credible challenge to the iTunes dominance of digital music consumption. While it runs a free radio-style service with advertising, unlimited music can also be heard (without adverts) using a subscription model. It has over 24 million users as of March 2014 and over 6 million subscribers.

To serve this huge market and continue to develop the product, Spotify has 30 development teams spread over 3 cities. Spotify has grown fast: founded in 2006 as a small start-up, it had to scale fast. In order to manage coordination and collaboration at scale and maintain the agility of its start-up mentality, Spotify developed an unusual number of teams and cross-teams.

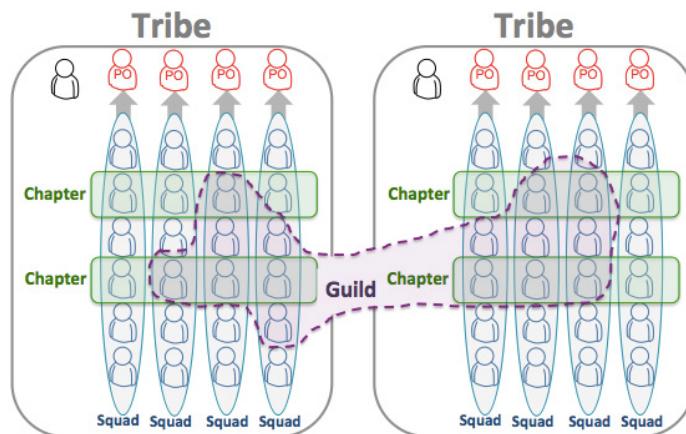


Figure 33. How they dealt with teams in a product development environment (from Crisp – Henrik Kniberg and Anders Ivarsson)

### Squad

The fundamental team unit at Spotify is known as a 'squad'. This team sits together, and is fully cross-functional, having everything required to design, develop and release an increment that will contribute towards their long-term goal. Each is self-organising, adopting whichever process best suits it – while some use Scrum, others prefer Kanban, and others have developed their own hybrid mixture. The company supports them by providing a collaborative office space, freedom to hold innovation days (hack days), a coach and a product owner who helps prioritise and holds the product roadmap for that team.

## Tribe

Squads are collected into ‘tribes’. These are broad groupings of teams into a related business or customer area, for example, ‘music player’ or ‘back-end infrastructure’. The tribe all sit in the same office and have shared areas (like a sitting area) to promote collaboration. There is also a tribe lead who acts in a coordination role making sure that all the squads have the best environment and support – rather like as in an incubator, this might mean shared talks, events or services. Weekly gatherings allow squads to share their work, show off a new tool or technique and ask for help. The total number in the tribe is kept to under 100 to make it possible to genuinely have and keep track of relationships within this broader grouping.

There are often dependencies between squads within a tribe – since they are working in related areas this is not too surprising. The aim is to keep these dependencies as few as possible and meetings (rather like a Scrum of Scrums, only less regular) are designed to throw up dependencies which are blocking, slowing down or likely to cause a future issue to another squad. The teams then work to resolve these issues and to see how they can break down the dependencies. When particular squads have to work together on some particular project, daily synchronising meetings are held and specific issues noted and tracked.

## Chapter and guild

As we’ve pointed out above, decentralisation and autonomy is great, but it can mean a loss of efficiency. If someone in another team has already solved a problem it would be quicker and cheaper to pass that solution on to all the teams. How do you achieve such efficiency without returning to central command and control management?

At Spotify they have instituted a further two groupings: chapters and guilds. Within a tribe, different specialisations form a chapter – web developers, testers, back-end developers, etc. These can share specific knowledge and expertise and ask one another for help. Each chapter has a team lead who has specific responsibilities for the others in her chapter: setting salaries, developing capabilities through training, etc. This is in addition to her role within a squad working on delivering increments.

A guild is a kind of company-wide version of the chapter, although slightly more organic since anyone interested can join, and is described as a ‘community of interest’. A guild coordinator officially manages events and gatherings from time to time to bring together everyone in the ‘web technology guild’ or the ‘tester guild’.

To some it might sound like a rather fancier description of what more traditional organisations try to achieve. After all, someone might be a member of the ‘web department’ within a business unit ‘Europe’ and then belong to a cross-functional ‘project team’. The difference is that the project team, the one that actually produces work, is the main unit in Spotify, with necessary coordination and collaboration activities supported and assisted through a network of strong and weak ties. These are deliberately set up to follow the organisation’s needs but with plenty of opportunity for the serendipity of unexpected connections.

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### **Activity 13: Chapter and verse**

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This activity is a chance for you to reflect on what you have learned and discuss with your colleagues any changes you might want to implement. As such we suggest it should take place over several weeks as you institute a change and then observe its effects.

Consider the Spotify case study and what elements might help your own organisation. It's unlikely that you can create a huge change in structure, but you can make a few changes and see what impact they have.

Begin by considering what use a 'chapter' might be. Are there particular specialisations or roles which would benefit from sharing ideas and collaborating more closely? Can you organise a meeting for one of these to discuss needs across projects?

Next consider the looser grouping of a guild. Are there any topics of over-riding interest across the organisation? What form could a meeting take? Could you host a small web conference or a lunchtime get together?

How could related teams be grouped together within a tribe? What resources could they share that might help forge closer bonds? Think of shared space, a coaching opportunity, events, show and tell demos... Could you try one of these out?

As always you need to involve others to gain buy-in to the idea and search out feedback to find what people valued and found useful and what they would do differently. This also provides you with the data to show whether the idea is worth pursuing or not.

# 5 CONCLUSION

If it all sounds rather difficult, that's because it is.

In films, government agencies spread their extraordinary network of intelligence and power to zone in on rogue agents or track down suspected terrorists (they always have great photographs in the files of their suspects); while in concrete bunkers acres of files contain information on every citizen.

Anyone who's ever worked in government intelligence must sigh longingly. If only. The story of the terrible 9/11 World Trade Center disaster is one of missed opportunities for action, delays in sending information, refusal to share secrets between agencies and crucial messages not being passed to the right department to take action.

The University of Oxford anthropologist Robin Dunbar stated that the number of relationships a person can normally handle is about 150. This, supposedly the average number of contacts in a mobile phone, equates to our modern tribe. Beyond that number we need to create structures, rules, laws and culture to create a group that can live together. And yet our work and our world often requires us to manage far more than that 'magic number'.

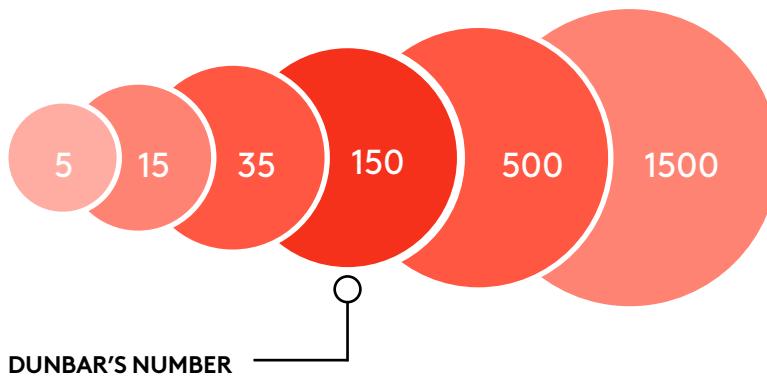


Figure 34. Dunbar's number – a suggested cognitive limit to the number of people with whom one can maintain stable social relationships

A nation's government has to handle millions of people, the world's governments have to collaborate on long term problems like climate change and food production that take account of billions of people with thousands of conflicting interests.

And we're not very good at it. We have come up with partial solutions throughout history: monarchies, oligarchies, democracies. All of them have problems. Winston Churchill once famously quipped that democracy was the worst form of government, except for all the others.

Software development has not – alas – discovered how to perfectly communicate, collaborate and coordinate large numbers of people. We can only point out that there are some clear guidelines on what not to do, well-proven suggestions likely to make things better, and ideas that might help if you work at them really hard.

The good news is that humans are quite exceptionally good at succeeding in spite of these tottering jerry-built structures. We do pull off great feats of engineering and agriculture, requiring the cooperation and talents of thousands. We manage to build and survive in cities with populations of millions. In spite of waste, errors and competition, we are the most successful collaborative species on the planet.

## Learning outcomes

Now you have completed this session you will be able to:

**Appreciate the importance of communication, collaboration and coordination in product and software development and examine common failures and their impact**

- Many workplace problems can be traced to failures in communication, collaboration and coordination
- They can be emotionally charged and financially costly, with disputes resulting in a lose-lose scenario
- Software development requires a collaborative approach

Compare the Agile approach and the practices emphasised in key methods such as Scrum, Kanban and XP

- Agile recognises the fundamental importance of communication and collaboration and suggests various tools
- Scrum uses a regular cadence of meetings designed to foster all three including planning, daily stand-up, review and retrospective
- Kanban uses visibility of work and flow improvement to enable all three, as well as the specific Operations Review Meeting
- XP uses a regular cadence and pair programming, co-located customer and collective ownership as key collaborative techniques

Appraise the general principles of communication and the appropriateness of differing methods

- Communication is about more than words and requires both transmission and understanding – gesture and response
- Differing methods are appropriate depending on the context and need. Students should understand the pros and cons and thus where to apply them (face-to-face, ad hoc, telephone, email, group chat, video tools)

Identify when to use collaboration, the barriers that block it and evaluate how to enable it

- Appreciate why collaboration has benefits, as well as the costs of making it work and thus which situations in which to invest in it
- Four barriers: not invented here, hoarding, search, transfer
- Enabling: using it correctly; setting up the environment; networking; goals and alignment

Critique differing approaches to coordination and judge where each is most appropriate

- The benefits and costs of command and control coordination
- The power and difficulty of self-organisation
- Coordinating at the software level

Understand and apply the most effective tools to assist in improving communication, collaboration and coordination for your organisation. This includes designing, implementing and evaluating a tailored structure and set of practices.

- One-to-one tools and techniques:
  - Communication: active listening; clarification and exploration; self expression; valuing dissent
  - Collaboration: pair programming, visualisation, shared work product; finding collaboration partners; coping with disagreement
  - Coordination: diaries, reviews, interruptions
- Team tools and techniques:
  - Communication: running an effective meeting
  - Collaboration: using a repertoire of visual and physical tools; running retrospectives
  - Coordination: task boards; planning and cadence
- Crowd tools and techniques:
  - Communication: challenges and solutions to broadcast communication; information radiators; all hands meetings
  - Collaboration: structured networks map, evaluate and strengthen; leveraging
  - Coordination: creating the sub-team structure; establishing common ground; coordinating plans; using coordination meetings; employing specialist roles

# BIBLIOGRAPHY

- Adkins, L.**, 2010. *Coaching Agile Teams: A Companion for ScrumMasters, Agile Coaches, and Project Managers in Transition*. Addison Wesley.
- Adzic, G.**, 2009. *Bridging the Communication Gap: Specification by Example and Agile Acceptance Testing*. Neuri Limited.
- Agile Manifesto**, 2001. Principles Behind the Agile Manifesto. [online] Available at: <<http://agilemanifesto.org/principles.html>>. [Accessed 22 October 2011].
- Allen, T.**, 2001. *Organising for Product Development*. MIT Sloan School of Management.
- Anderson, D.**, 2010. *Kanban: Successful Evolutionary Change For Your Technology Business*. Blue Hole Press.
- BloombergBusinessweek**, 2013. The Dunbar Number, From The Guru Of Social Networks. [online] Available at: <<http://www.businessweek.com/articles/2013-01-10/the-dunbar-number-from-the-guru-of-social-networks>>. [Accessed 25 October 2013].
- Boehm, B., Turner, R.**, 2003. *Balancing Agility And Discipline: A Guide For The Perplexed*. Addison Wesley.
- Caroselli, M.**, 2000. *Leadership Skills for Managers*. McGraw Hill.
- Cohn, M.**, 2009. *Succeeding with Agile: Software Development Using Scrum*. Addison Wesley.
- Computerworld**, 2013. Oracle, Montclair State University settle lawsuit over PeopleSoft software project. [online] Available at: <[http://www.computerworld.com/s/article/9237493/Oracle\\_Montclair\\_State\\_University\\_settle\\_lawsuit\\_over\\_PeopleSoft\\_software\\_project](http://www.computerworld.com/s/article/9237493/Oracle_Montclair_State_University_settle_lawsuit_over_PeopleSoft_software_project)>. [Accessed 24 October 2013].
- Derber, C.**, 2000. *The Pursuit of Attention: Power and Ego in Everyday Life*. Oxford University Press.
- Fahlman, S. Smiley Lore :-)**. [online] Available at: <<https://www.cs.cmu.edu/~sef/sefSmiley.htm>>. [Accessed 24 October 2013].
- Fierce**, 2011. 86 Percent of Employees Cite Lack of Collaboration for Workplace Failures. [online] Available at: <[http://www.fierceinc.com/uploads/pdfs/press/20110603\\_fierce\\_Survey\\_VILT\\_Press\\_Release.pdf](http://www.fierceinc.com/uploads/pdfs/press/20110603_fierce_Survey_VILT_Press_Release.pdf)>. [Accessed 24 October 2013].
- Forbes**, 2011. If Self-Management Is Such a Great Idea, Why Aren't More Companies Doing It? [online] Available at: <<http://www.forbes.com/sites/drucker/2012/09/25/self-management-a-great-idea/>>. [Accessed 24 October 2013].
- Gottesdeiner, E.**, 2002. *Requirements By Collaboration*. Addison Wesley.

- Hansen, M.**, 2009. Collaboration: How Leaders Avoid the Traps, Build Common Ground, and Reap Big Results. Harvard Business Review Press.
- Harvard Business Review**, 2009. Defining Common Collaboration Tensions. [online] Available at: <<http://blogs.hbr.org/2009/05/defining-common-collaboration/>>. [Accessed 29 October 2013].
- Harvard Business Review**, 2011. First, Let's Fire All The Managers. [online] Available at: <<http://hbr.org/2011/12/first-lets-fire-all-the-managers/ar/1>>. [Accessed 24 October 2013].
- Highsmith, J.**, 2009. Agile Project Management: Creative Innovative Products. Second Edition. Addison Wesley.
- Horst, W., Sørensen, V.** Collaboration And Communication In Design Games. [online] Available at: <<http://www.nordes.org/opj/index.php/n13/article/download/246/229>>. [Accessed 24 October 2013].
- InformationWeek Software**, 2013. Oracle, Montclair State University Settle Bitter Contract Dispute. [online] Available at: <<http://www.informationweek.com/software/enterprise-applications/oracle-montclair-state-university-settle/240150448>>. [Accessed 24 October 2013].
- Krigsman, M.**, 2011. Oracle Battles Montclair State Over Failed IT Project. ZDNet, [blog 20 July] Available at: <<http://www.zdnet.com/blog/projectfailures/oracle-battles-montclair-state-over-failed-it-project/13786>>. [Accessed 24 October 2013].
- Larman, C.**, 2003. Agile & Iterative Development: A Manager's Guide. Addison Wesley.
- Larman, C.**, Vodde, B., 2008. Scaling Lean & Agile Development: Thinking And Organisational Tools For Large Scale Scrum. Addison-Wesley.
- Lehrer, J.**, 2012. Imagine: How Creativity Works. Canongate Books Ltd.
- NBRI**. 10 Things Employees Dislike Most About Their Employers. [online] Available at: <<http://www.nbrii.com/employee-survey-white-papers/10-things-employees-dislike-most-about-their-employers/>>. [Accessed 3 July 2013].
- NBRI**. Engaged or Disengaged? That is the Question. [online] Available at: <<http://www.nbrii.com/employee-survey-white-papers/engaged-or-disengaged-that-is-the-question/>>. [Accessed 3 October 2013].
- Newline**, 2011. Employees Cite Lack Of Collaboration For Workplace Failures. [online] Available at: <<http://pmanewline.com/2011/05/27/employees-cite-lack-of-collaboration-for-workplace-failures/#.UdVpnDnlkbY>>. [Accessed 4 June 2013].
- Quote Investigator**, 2011. Military Command: Send Three and Fourpence. We're Going to a Dance. [online] Available at: <<http://quoteinvestigator.com/2011/08/26/reinforcements/>>. [Accessed 24 October 2013].
- Schwaber, K., Sutherland, J.**, 2013. The Scrum Guide - The Definitive Guide to Scrum: The Rules of the Game. [online] Available at: <<https://www.scrum.org/Portals/0/Documents/Scrum%20Guides/2013/Scrum-Guide.pdf#zoom=100>>. [Accessed 24 October 2013].

- Scrum Alliance**, 2011. Advice on Conducting the Scrum of Scrums Meeting. [online] Available at: <<http://www.scrumalliance.org/community/articles/2007/may/advice-on-conducting-the-scrum-of-scrums-meeting>>. [Accessed 24 October 2013].
- Stanford Encyclopedia Of Philosophy**, 2008. George Herbert Mead. [online] Available at: <<http://plato.stanford.edu/entries/mead/>>. [Accessed 24 October 2013].
- Tabaka, J.**, 2006. Collaboration Explained: Facilitation Skills for Software Project Leaders. First Edition. Addison-Wesley Professional.
- Tufte, E.**, 2006. The Cognitive Style Of PowerPoint: Pitching Out Corrupts Within. Second Edition. Graphics Press.
- Wharton University Of Pennsylvania**, 2011. Ban Email? Mon Dieu! [online] Available at: <<http://knowledge.wharton.upenn.edu/article/ban-email-mon-dieu/>>. [Accessed 24 October 2013].



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