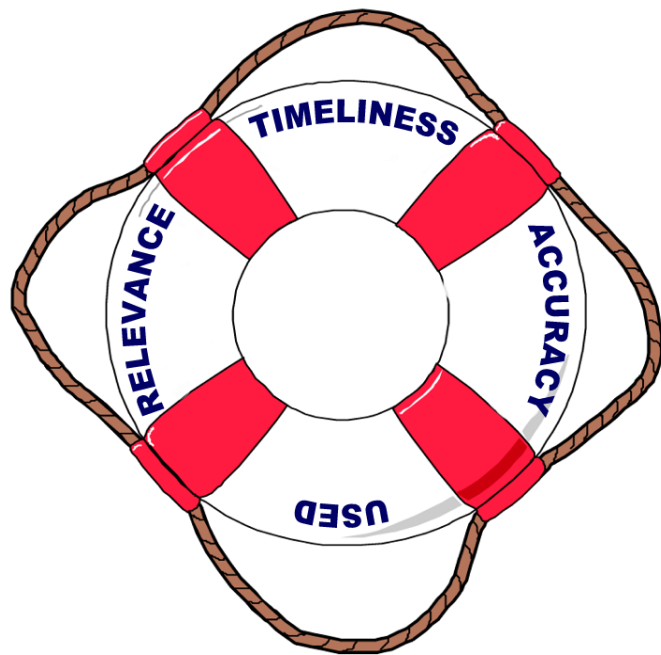


Managing Information

How to decide what you really need



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Version 7

www.managing-information.org.uk

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Welcome

...to this brief guide. It is intended to provide a few challenging thoughts, and practical advice, to avoid being overwhelmed by the avalanche of data and information hitting your desk and screen. It is intended to help you determine the information you *really* need.

We have never had access to so much data or been subjected to so much information and yet I have not come across any clear, concise guides as to how to handle it. Hence this guide, based on my experience in business.

The guide is intended for:

- Users of information.
- Providers of information.
- Designers of those systems which produce information from data. (These are the people who have to ask users, 'What information do you want from this system?')

As a result of using this guide you will:

- Understand the relationship between managing opportunities and risks, data and information.
- Be able to make better decisions with less information.
- Get better information, because the people who provide you with it will be more interested in their work.
- Find communication in your organisation will improve.

I hope you find the guide useful.

David Griffiths

1. So what are the problems of managing information?

1.1. Help! I'm drowning!

- a We're up to our necks in information, from e-mails, twitter, facebook, websites, reports, financial results and 'big data'.
- b There are two considerations:
 - What information **do** we get that we **don't** need?
 - What information **don't** we get that we **do** need?
- c In other words, just because we are drowning in information, doesn't mean that it is all useful or sufficient.

1.2. Data and information

- a One definition of information is

The imparting of knowledge in general. Knowledge communicated concerning some particular fact, subject, or event; that of which one is apprised or told; intelligence, news.

Contrasted with data: that which is obtained by the processing of data.

(Definitions from the *Oxford Dictionary of English*)
- b Information can therefore be considered as a collection of data processed in a way so as to communicate knowledge. For example, if you are trying to lose weight, recording your weight every week and plotting the results on a graph will show how successful you have been.

- c *Big Data* are large databases of data, for example on customers' buying habits recorded through the use of loyalty or credit cards. The existence of such large databases makes the managing of information even more important.
- d Although information can be derived from data, it may also come from other sources. For example, while it may take less time to travel from London to Amsterdam by plane (that's measurable data), you may prefer to travel by train because it's easier to work and relax on the train and you don't like airport queues (that's not easily measurable). We can't ignore information because it's not based on data.

1.3. The problems

- a So much information sent to us that may be useful, or may not. We have to choose which is which.
- b Huge amounts of data available but not being used because we don't know how to access it productively.

2. What are the solutions?

2.1. The need for information

- a If we're going to get the best out of the sea of information, we must consider why we need it.
- b Well, we need information (*Is it raining outside?*), otherwise we are operating by guesswork and may make a decision we regret (*I didn't know if it was raining, didn't take an umbrella and got wet*).
- c So we need information to make decisions (*It's raining, so I'll take an umbrella*). (A decision is like a physical force, it changes the speed and/or direction of our life).
- d We need decisions to seize opportunities (*it's stopped raining so I will go now and avoid getting wet*) or reduce our risks (*I'll take an umbrella to avoid getting wet*).
- e And we need to seize opportunities and reduce risks to achieve our objectives (*I don't want to get wet*).
- f Therefore,
 - We maximise the chances of achieving our objectives by reducing the risks which threaten their achievement, or by increasing the opportunities which benefit their achievement.
 - We reduce these risks by making decisions which manage them to an acceptable level, or increase opportunities by making decisions which make them worthwhile.
 - We make the best decisions by obtaining the best information available.
- g By implication, the better the quality of information, the better the chance of achieving our objectives. (Or the worse the quality of information, less likely we are to achieve our objectives!).
- h So we need to think about how to get good quality information.

2.2. Good information

- a What are the principles of good information?
- **Relevance:** it must help us reach a decision. Knowing it's raining in Outer Mongolia won't help us make a decision about taking an umbrella – unless we're in Outer Mongolia.
 - **Completeness:** there's no point in only having part of the information. Knowing it's raining is useful but it would be more useful if you knew how hard and if the forecast was for continuing rain.
 - **Simplicity:** the information should convey a clear message. *It's raining, not there's a certain amount of aqueous precipitation in the atmosphere.*
 - **Accuracy:** this can vary from totally inaccurate: *it's not raining* (when it is) to excessive accuracy *it's raining with drops of average diameter 0.12342mm.*
 - **Timeliness:** The information needs to be with us when we need to make the decision. *No point in getting soaked before you realise that it's pouring.*
- b We'll consider completeness to be part of accuracy and simplicity to be part of relevance.
- c And of course the information must be **used!** However good the information, if it is not used it's worthless.
- d We'll now look the process involved in identifying the information we need, by considering: the **objectives** we must achieve; the **opportunities** which might benefit this achievement; the **risks** which might hinder this achievement; the **decisions** necessary bring the risks down to an acceptable level and the **information** required to support these decisions.

3. How do we identify the information we need?

3.1. Objectives

- a Our objectives may arise from:
 - The organisation we work for (increase sales by 6%).
 - A set of circumstances forced on us (buy a new phone because the current one was left in a shirt pocket and got washed).
 - A beneficial requirement (book a holiday).
- b If we don't understand our objectives, we are never going to be able to define our information requirements.
- c As an example, let's assume the organisation we work for is based in London with an Amsterdam office. We have to attend a meeting in the Amsterdam office at 11:00 on a specified day in about a month's time. This is our objective.

3.2. Risks

- a Having identified our objectives, we need to determine the opportunities which might benefit their achievement and the risks which might hinder their achievement.
- b A risk may be defined as a set of circumstances which threatens the achievement of an objective.
- c For our trip to Amsterdam, the risks are that we might: be late; arrive exhausted; exceed the budget. The decisions we make about the mode of transport will need to reduce these risks to a level we are prepared to accept.
- d Risks are part of life, so we have to manage them by:
 - Avoiding them (I won't go to Amsterdam).
 - Insuring to offset any costs (I'll take out travel insurance).

- Controlling them (I'll go by plane because it minimises the cost of the trip).
 - Accepting them (I'll risk being 15 minutes late).
- e So we have to decide what action to take in order to reduce the risks to a level acceptable to us.

3.3. Decisions

- a We now need to identify the decisions necessary to minimise the risks to an acceptable level.
- b A decision is an action which enhances an opportunity or mitigates a risk.
- c In our example, we must decide how to travel: plane, train or car. This decision may give rise to other decisions; should we go a day early and stay in a hotel. If so which hotel?
- d In identifying decisions, we need to understand:
- A request for more information is not a decision, as it doesn't mitigate a risk – it just shows you didn't get the right information in the first place.
 - A decision to do nothing is a decision. For example, if you have taken a patient's temperature and it is normal, you will take no action because there is no risk.

3.4. Information

3.4.1 Principles of information

- a Having identified the decisions required to mitigate the risks which might threaten us achieving our objectives, we can look at the information we need.
- b We'll look at each principle in the sections below.

3.4.2 Relevance

- a We need to concentrate on the information which leads us to the best decision. That's relevant information.

- b In our example, we need details of trains and planes going from London to Amsterdam which will get us to our meeting by 11:00 at the latest. We want to minimise the risk of being late. Is a train timetable the information required to make the best decision? No – because it doesn't tell us what seats are available to book. There's no point in deciding on a train or plane leaving at a specific time if we can't book a seat at an acceptable price. We need times of trains and planes with seats available for us to book at a price we're prepared to pay. So the best, **relevant** information is likely to come from an enquiry on the web, which has the latest information.
- c We therefore must be very specific when requesting information from others, including websites. This can cause problems, as some web search engines don't handle specific searches very well.
- d The information must be **simple**. We don't want complex web pages which are difficult to use.

3.4.3 Accuracy

- a We often consider accuracy to be an indication of "rightness" or "wrongness". But in practice, when measuring, for example, a distance (kilometres), the weather (foggy), profits (dollars), or time (hours), there can only be degrees of "rightness".
- b The accuracy with which we can measure something not only depends on our measuring apparatus (kitchen scales or scientific balance) but on what we are measuring.
- c For example, how far is it from the centre of London to the centre of Amsterdam? According to [mapcrow](#) it's 222.16 miles (357.52 Km). This answer uses the latitude and longitude of each city and is probably the most accurate available but even then the accuracy depends on the definition of the position of the *centre* of each city (see below). Thus there is an *inherent* inaccuracy in any answer which limits us to an accuracy of about ½ mile. (The map maker can be more accurate than this but isn't bothered about a definition of the centre of each city.) But this answer is not relevant because it is not the distance we have to drive.

- d Let's try [Google](#). Using the E40 road, this gives us a distance of 331 miles, although the Google map bases the centres of London and Amsterdam on streets which would not be considered as the centre of those cities by their residents.
- e The fastest driving time is estimated at 5hours 50 minutes, but 6hours 10minutes at the time of writing, due to traffic conditions. This assumes we take the car on Eurotunnel and not a ferry, and that we don't have to wait. We'll also want to stop for meals.
- f In our example, we want to decide on whether to drive. The Google information informs us that it will take most of a day (which is the level of accuracy we actually need) and therefore we'll have to travel the day before and day after the meeting.
- g Google also estimates the fuel cost at £66.59.
- h So while Google provides very useful information about distance, travel time and fuel cost, all are quoted with a greater accuracy than practically measurable.
- i So accuracy cannot be absolute and we need therefore to consider why we need the information, i.e. what decisions are to be taken, before defining the accuracy necessary. The distance isn't relevant to us, other than to calculate the travelling time, which is very important, but not needed to the nearest 10minutes. Knowing the fuel cost to the nearest £10 would be more than adequate, and more realistic.
- j In order to be accurate, the information we receive must also be **complete** – so we need travelling times by car, train and plane. If any one of these times is missing, we may not make a correct decision.

3.4.4 Timeliness

- a There is a tendency to ask for information as soon as possible. The speed that information is required seems to depend on the seniority of the person requesting it. But, there a contradiction here; the more senior a person is, the more they should be looking into the future and making strategic decisions. Since strategic decisions are often arrived at over a period of several months, during which information is gathered to support the decision, that information is not required urgently.
- b Surely we need to make decisions urgently? Not necessarily — other required information may not yet be available, (i.e. it isn't *complete*); the decision may not take effect for many months; or more urgent decisions must be made. There is also the possibility (probability?) that the information will lie on our desk for some time before we look at it.
- c So information needs to be available at the time we make the decision.

4. How do we put the principles into practice?

4.1. Relevance

4.1.1 Information received

- a **If we receive information which doesn't help us make decisions to increase our opportunities and reduce our risks, we should ignore it.**
- b Any information appearing on our screens and in our in-trays should be judged against this rule!

4.1.2 Historical information and forecasts

- a **Decisions cannot change the past, only the future.** Thus information used to assist in decision making should look to the future. The past is only useful to predict the future. So if the plane was an hour late due to bad weather last time we travelled we can't make a decision based solely on that information. We may be travelling from a different airport, on a different airline at a different time of day. However, forecast information can help decision making. Since we are booking a month in advance, no detailed weather forecast will be sufficiently accurate. We can consider the month of travel and draw general conclusions (November gives a risk of fog) plus we can look at previous punctuality figures for the flight and forecast a likely delay. So historical information is useful but only to increase the likelihood of an accurate forecast. Yet how much time is spent, by managers and their accountants, looking at historical data when they can't change it?

- b This is not really surprising, since risks can only affect the future. It's a bit too late to worry about risks in the past hindering our objectives (*it rained so I got wet*)!
- c Yet how much time is spent looking at information that looks forward and attempts to predict the future, and therefore reduce our risks? A lot less than is spent on historical accounts!
- d If one of our objectives is to ensure the continued existence of our organisation, by reducing its risks, we need to make decisions which affect its future.
- e To make decisions which minimise risks, we need information that predicts the future. This information not only consists of forecasts of future profitability but competitors' press releases and web sites, news in trade journals and papers, attendance at exhibitions. Any information which gives us an indication of those forces which will affect our future needs to be identified and factored into our accounting forecasts.
- f Forecasts are not budgets or expected 'actuals' against budgets, these figures are usually targets and therefore based on hope, as opposed to reality.
- g Forecasts should be a realistic attempt to predict the future results, within a stated accuracy. Accountants' efforts should be directed at getting forecasts as accurate as possible and explaining differences from the actual results.
- h Forecasts will never be accurate but the attempt to get good forecasts will provide information about the factors which influence the organisation's performance.

4.1.3 Risks

- a We have clearly established that **the management of opportunities and risks is linked to the management of information.**
- b The identification of risks will also help us focus on the future, since past risks are not relevant. In this context, the use of risk modelling software, such as [@RISK](#) is useful.

4.1.4 Information requested from others

- a **We need to tell our information providers: our objectives; the opportunities likely to benefit their achievement; the risks likely to threaten their achievement; and the related decisions.**
- b Information providers can then tailor the information they provide to our requirements. This saves their time and ours.

4.2. Accuracy

4.2.1 Realistic accuracy

- a We must take accuracy into account when providing and requesting information.
- b **We shouldn't expect any information provided to us, or by us, to be greater than we can reasonably measure or estimate.**
Thus, if we are asked for a forecast of sales in three years' time, our answer should be in the form £100 ± 30m. The degree of accuracy we can provide will depend on the past data we have and our confidence in the assumptions we have to make.
- c Yet an accountant may be happy to quote a profit figure like £124,675, usually because it is from an Excel spreadsheet calculation. But for various reasons, such as difficulty in valuing stock and debtors, the realistic answer is more likely to be £125,000 ± 3,000 i.e. between £122,000 and £128,000.
- d Why is providing information to an unrealistic accuracy harmful?
Because it implies that it can be determined to that accuracy and thus implies it must be correct (remember the Google figure of £66.59 for fuel?). Which of the profit figures quoted above would we trust? The first one probably, because it gives an impression of accuracy, while the second one gives the impression of uncertainty, since anyone quoting profit in a £6000 range isn't confident. However, the reverse is true; the second figure is the more trustworthy, since it gives an accurate impression of the uncertainty of the number. Try selling that explanation to a Managing Director!

4.2.2 Start with the most accurate figures

- a Some decisions may involve information of varying accuracies. Supposing we want to set up a restaurant and we need to work out whether, in ten years, we will have any cash in the bank. The conventional way is to try and estimate the sales, subtract the costs and see if there is any left over. The problem with this method is that the range of possible sales figures is very wide, after subtracting the costs we may be left with a range of answers from being bankrupt to rolling in money.
- b However, start from the figures we know most accurately – the cost of renting and fitting out the premises. We can reasonably estimate the profit to be made from the average meal and can then work out how many diners are required to cover our labour and premises costs. If the answer exceeds the capacity of the restaurant, or requires us to open 20 hours a day, we know we need to rethink.
- c By using this method, we have to make fewer guesses and those we do have to make are based on reasonable assumptions.

4.3. Timeliness

4.3.1 Wrong place, wrong time

- a The relationship between the position of the information user in the organisational hierarchy, and the speed at which they are provided with information, often results in information being made available in totally the wrong places at the wrong time.
- b For example: who needs to know when the next delivery of toys is due? The shop assistant, faced with a customer who has just travelled miles only to find they are out of stock, or the merchandise director? If the shop assistant works for a forward thinking retailer, this information might be on their sales desk screen, otherwise it's a 'Sorry, don't know' answer to a dissatisfied customer. The Merchandise Director, however, probably has the information at her fingertips but doesn't need it to make an immediate decision (or any decision).

4.3.2 Information when and where it is needed

- a So **we should request information with an urgency related to the urgency of the decision**, allowing for the need to understand the information before making the decision, and not 'As soon as possible'.
- b This will almost certainly result in providing information for people at the "sharp" end of the organisation (i.e. the people dealing with customers or clients) before providing it for the strategists (senior managers and directors).

4.3.3 Monitoring information

- a The risk of stock shortages is an example of a continuing risk, unlike the risks associated with our trip to Amsterdam which were 'one-offs'.
- b Where there are continuous risks, such as stock shortages, electricity overloads and bad debts, we need continuous information, such as automatic ordering, circuit breakers and credit checks.
- c In these instances the decision making has been automatically tied to the information. If stock falls below 2 weeks supply then order 400 items, if current exceeds 30 amps then operate a trip switch, if the last invoice was not paid then reject the order.
- d In all these cases the decision has had to be programmed into the appropriate system and the timing of the decision is included in that programming. For example orders for replacement stock need to be generated in time for replacement stock to arrive before the shelves are empty. We don't, however, want a circuit breaker to take several weeks before operating!
- e Information which constantly monitors risks, its timing and use, are very important in controlling those risks which continually threaten the achievement of our objectives.

5. Example – London to Amsterdam

5.1. Objectives

- a Our objective is to travel from London to Amsterdam for a meeting on Monday May 13th, starting at 11:00am and finishing around 4:00pm.
- b We need to keep expenditure to a minimum.

5.2. Risks

- a The risks include:
 - We arrive late.
 - We get to the meeting very tired.
 - Costs of the complete trip are over our expected budget of £300.
 - The meeting may be cancelled, and we therefore lose money paid for non-refundable fares.
- b There will be other risks, possibly arising from our choice of transport. For example, an accident is more likely if we go by car. There's no point in taking account of these risks if car travel is not the preferred choice.

5.3. Decisions

- a What decisions do we need to make in order to reduce our risks to a level we're prepared to accept?
- b The first decision is the mode of travel (plane, train or car), since this will affect the first three risks above.
- c Depending on the amounts of money at stake, we may decide to accept the final risk.
- d Depending on the time of travel, we may need to decide on accommodation.

5.4. Information

5.4.1 Relevant

- a I'm not going to go through all the information but will just provide examples.
- b We know that the meeting is in our organisation's office, ten minutes tram ride from the main station.
- c The first information we have to gather is availability of transport. This will provide times and costs. At the time of writing (April, 2019), booking for May 13, the first train leaves at 06:13 arriving at 11:44, with a change at Brussels so there's no chance of travelling on the same day as the meeting. The last train leaves at 17:15 arriving back at 21:33 (Amsterdam time is one hour ahead of the UK), which is early enough for us to get home. However, we don't know if the meeting is likely to finish late. Lowest total cost for a standard fare is around £200, excluding the cost of an hotel room.
- d By plane, a British Airways flight (BA428) leaves London Heathrow at 6:40 and arrives at Amsterdam at 9:05. That will give us time to get to the meeting. Cost is around £200 return.
- e There is a risk that the plane will be delayed. Flightradar24 statistics show the flight usually leaves late but arrives on time.
- f We live near Heathrow, so shouldn't have to get up too early!
- g We know that we'll have to take three days by car, which is more expensive than the plane, when Eurotunnel and hotel costs are included.

5.4.2 Timeliness

- a Timeliness is important; to make sure the seats aren't sold, we need to book as soon as possible.
- b This has to be balanced against the risk that the meeting is cancelled.

5.4.3 Accuracy

- a We could try to be more accurate about costs and times but...
- b There's no point about being too accurate on costs. We can work to the nearest £20 and still know whether we are within our budget.

- c There's not much point about being very accurate about times. We have to arrive at the airport at least 30 minutes before the flight departs and can only estimate the time from the aircraft landing to our arrival at the office to about an hour, plus or minus 15 minutes. It will be tight but we can manage that risk by asking for a slight delay if we are late. (We know from experience that these meetings rarely start on time).

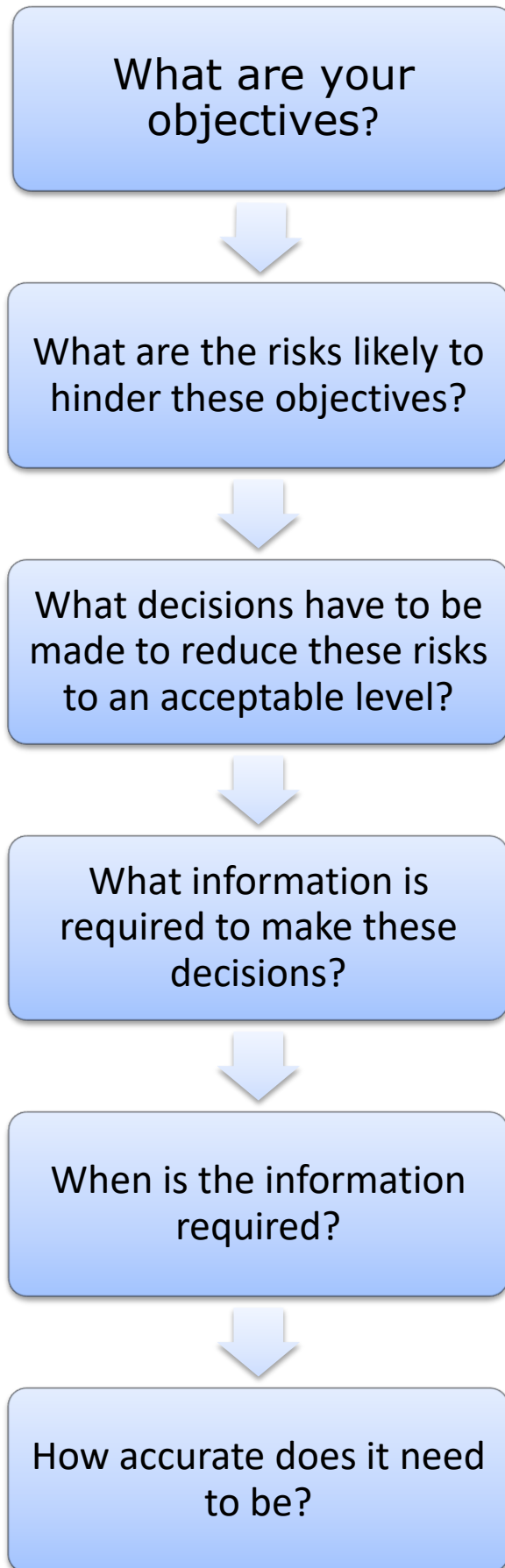
5.5. Conclusions

- a We travel by plane on the same day as the meeting as it's the cheapest option, taking the least time.
- b There are risks that we will arrive tired and maybe late but they are acceptable. If they were not, we would travel the day before. We would need to check that the plane was still the best option.
- c If the meeting is cancelled, we lose the money paid for the tickets. This risk is acceptable compared with the risk that we might not be able to book such cheap fares nearer the date of the meeting.
- d We have not taken into account the wider environmental risks of travelling by plane instead of train.

6. Personal action

The example above gives an idea as to how we can apply the principles in this document. What personal action can we take?

- a A flowchart of the process to use is summarised on the next page.
- b There is a form on the page after to record the results of the process.
- c When asking for information:
 - Make sure that the information to be provided will be sufficient to make the decision – no more, no less.
 - Tell the provider what decision you wish to make or, if it's confidential, be clear in your own mind what it is.
- d When asked to provide information:
 - Ask what decision is to be made, based on the information requested (assuming such a question won't result in termination of employment).
 - Confirm that the information you will provide is exactly what is required.



e This form could help in the process:

OBJECTIVE: Increase sales of ice creams by 6%

RISKS HINDERING THE OBJECTIVE	DECISIONS REQUIRED TO MANAGE RISKS	INFORMATION REQUIRED TO MAKE DECISIONS
Bad weather	Advertise our products, especially for eating at home.	Forecast sales figures
		Planned advertising campaigns
		Competitors' advertising campaigns
		Advertising rates
		Sales figures achieved from previous advertising campaigns
		Calculation to show whether increased profits as a result of increased sales justify the advertising costs.
New competitor products launched	Launch our own new products	Market research to determine gaps in the market
		Planned new products in development
		Calculation to show whether increased profits from the new products justify the costs of the development, launch and any affect on profit of existing products.

Timing:

Advertising information: provide sufficient time to prepare and launch campaign.

New product: provide sufficient time to research and launch new product.

Accuracy:

Use @RISK calculations to determine the sensitivity of the cost justification calculations.

7. The Board 'Pack'

7.1. The problem

When governing boards, such as the Board of Directors or Trustees, meet they are usually presented with a pack of papers (or on-screen information) which is intended to summarise the state of the organisation. Such packs may comprise:

- The latest set of accounts (possibly in great detail).
- A forecast of budgets against predicted actual figures.
- A narrative explaining the above.
- The major risks threatening the achievement of the objectives of the organisation and their status.
- Details of expenditure to be approved, with justification.
- Reports the board may have requested, for example on possible opportunities in new markets.

Such board packs may be many pages long and impossible to read between receipt and board meeting. The Institute of Chartered Accountants in England and Wales (ICAEW) have produced a publication, ['Information Overload'](#) (opens pdf file) detailing the problems and possible solutions. One principle set down is, 'Boards need to define their needs and communicate and pursue those persistently'. How are needs to be defined?

7.2. Why is the board pack required?

Let's get back to basics:

- The main aim of directors is to achieve their objectives
- They achieve their objectives by making decisions.
- In order to make the best decisions, the best information is required

So in order to consider what might be the 'best information' we need to consider 'decisions'.

- Decisions are like a physical force, they change the speed and/or direction of an organisation.

- A request to ask for more information is not a decision; it just shows the relevant information wasn't sent in the first place.
- A decision not to do anything is still a decision.
- DECISIONS CAN'T CHANGE THE PAST (Sorry for shouting but it's important).

What conclusions can we draw about the characteristics of the 'best information'?

- Since decisions can't change the past, historical information is not relevant other than as a guide to forecasts, and it may not be a reliable guide.
- Information which is not used to make decisions is not relevant and should not be included in the board pack.
- Information which should be in the board pack must be directly relevant to making decisions which contribute to the achievement of objectives.
- All information relevant to making a decision must be in the pack.
- Information should be no more accurate than required or that can be obtained.

So the board pack is required to provide information to make decisions to achieve objectives. What does the board define as its needs? It first must consider its objectives.

7.3. The solution - Define objectives

The board has to specify the 'mission statement' of the organisation and the objectives which will deliver the mission before any discussion about information requirements can begin. The mission statement will vary depending on the organisation but the objectives can generally be specified as:

1. Set up a strategy to deliver the objectives of the organisation
2. Maintain profit (or cash flow) of existing organisation
3. Develop the organisation
4. Operate within laws and regulations
5. Trade responsibly
6. State how responsibilities are met
7. Maintain support functions to deliver the objectives

Decisions will need to be made to achieve these objectives and information is required to ensure these decisions are the best. How do we define the board's information needs?

7.4. The solution – risks, decisions and information.

Taking our advice under 'Personal Action' and turning this into a table

7.5. Definition of Board needs

Objective	Opportunity/risk	Decision	Information required	Responsibility
Set up a strategy to deliver the objectives of the organization	Strategy not established	What is our strategy?	Requirements of the governing documents (trust deed, Articles of Association) The characteristics of the organisation (retail, charity, manufacture) The target market(s) and their expectations Legal and regulatory requirements Current developments in target markets Changes due in the trading environment	The Board supported by senior management
	Strategy not communicated	Who is to be informed of the strategy?	Strategy divided into objectives for individual jobs Job descriptions and objectives	Human Resources
	Strategy not put into action	How to monitor progress in achieving objectives?	Establish, for each objective, information which concisely shows progress towards achieving objective. See individual objective for details	
Maintain profit of existing business	Strategy (may be expressed as targets) will not be achieved	What action needs to be taken to achieve targets?	Forecasts which properly reflect the trading and regulatory environment; income; and costs over the foreseeable future. Accuracy to be realistic and stated. Comparison of forecasts with targets and action being taken to achieve targets. Explanations of changes in forecasts and learnings to improve future forecasting	Dedicated forecasting team* Management responsible
	Board gets a 'nasty surprise' because management do not keep it informed of unexpected events	How can we stop 'nasty surprises'	Forecasts prepared using data from managers, auditing by forecasting team	Dedicated forecasting team* Management responsible
		Why did we get a 'nasty surprise'?	Independent explanation as to why the surprise occurred and how do we prevent the next one (see above)	Depends on why surprise happened. Possibly use internal or external auditors.

Objective	Opportunity/risk	Decision	Information required	Responsibility
	Action by government or other external circumstances provide opportunities or introduce threats to profits	How can we seize unexpected opportunities or reduce the effect of external circumstances?	See forecasts above. Depending on the circumstances these may need to be changed urgently.	Forecasting team, plus dedicated team to propose necessary action
	Initiatives by competitors reduce profits	How do we minimise the impact?	Monitoring of competitors' activity	Senior management
			Consider alternative scenarios and produce forecasts. Depending on the circumstances these may need to be changed urgently.	Dedicated forecasting team*
	Risks not properly managed	Where do we need to take action?	Audit reports which highlight serious deficiencies	Internal audit
		What new risks are threatening our objectives and how will we manage them?	Exception report on significant new risks and suggestions as to management of these to reduce them to acceptable levels.	Senior Management Risk Management Internal Audit
Develop the organisation	No clear strategy as to how to grow the organisation - organic growth or acquisition	What strategy is the best to maximise growth?	Options available, with benefits versus costs (including uncertainty in figures), time period, opportunities and risks, means of managing opportunities and risks. Targets set to ensure delivery	Dedicated forecasting team*
	The organisation fails to follow the strategy	Where does the board need to act to implement the strategy?	Forecasts which properly reflect the trading and regulatory environment; income; and costs over the foreseeable future. Accuracy to be realistic and stated. Explanations where targets are unlikely to be met and proposed action.	Dedicated forecasting team*
	An unexpected opportunity occurs to grow the organisation	Do we seize this opportunity?	If we seize the opportunity, report on the possible scenarios and how do these affect our finances and reputation	Forecasting team, plus dedicated team to propose necessary action
	The organisations fails to anticipate opportunities or threats to growth	How do we spot opportunities or threats to growth?	Monitor competitors and markets using information gathered from trade publications, shows, exhibitions, conferences. Exception report to the board highlighting opportunities and threats.	Senior management

Objective	Opportunity/risk	Decision	Information required	Responsibility
	The board approves expenditure which exceeds benefits	Should we approve this expenditure	Standard approval procedure which includes a financial case, which has been independently audited, appropriate mathematical modelling, opportunities and risks affecting the expenditure's objectives.	Senior management proposing the expenditure. Independent accountants
Operate within laws and regulations	Organisation fails to anticipate important legislation	What legislation requires board action and possible lobbying of government?	Forthcoming legislation and the likely impact (financial and other)	Forecasting team, plus dedicated team to propose necessary action
	Organisation fails to comply with legislation	How do we find out as soon as possible	Exception reports from lawyers and internal Audit (and others as appropriate)	Legal Dept Internal Audit
		How do we correct it, who do we tell?	What happened, why it happened, what the implications are.	Depends on legislation. Possibly external legal advisors or auditors
Trade responsibly	Do not clearly set out commitment to trading responsibly- also includes remuneration policy	What do our stakeholders, customers and the public consider to be 'our responsibilities?	The published commitments of similar organisations Opinions of customers and staff as to what they consider 'responsible trading'	Possibly set up a Corporate Social Responsibilities Committee of the Board
	Organisation is found to be acting irresponsibly	How to correct situation?	Independent report on how the situation occurred, how to correct it and ensure it doesn't reoccur	Depends on situation
State how responsibilities are met	Responsibilities not clearly understood	Which organisations do we have to officially inform, about what?	Legal and regulatory requirements for disclosure	Legal Dept, Financial Accountants
			Public relations expectations on disclosure, such as action on climate control, use of plastics, use of pesticides	PR advisors Corporate Social Responsibilities Committee
	Targets will not be met	What do we tell our stakeholders?	Legal and stock exchange requirements to inform stakeholders	Legal Dept, Financial Accountants, External Auditors

Objective	Opportunity/risk	Decision	Information required	Responsibility
	Organisation is found to be acting irresponsibly	What to tell stakeholders and the public	Reaction of public and stakeholders to news Independent report on how the situation occurred, how to correct it and ensure it doesn't reoccur Learning from scenarios of possible situations played out with PR team	PR team
Maintain support functions to deliver the objectives	Organisation does not deliver objectives because of failures in support functions, such as Legal and Finance Departments	What resources are required?	The forecasts and exception reports noted above should indicate support functions failing in their responsibilities	Internal Audit

*The dedicated forecasting team will be comprised of representatives from, for example: accountants, lawyers, production, marketing, research, stores management, risk management, internal audit. The ICAEW is in the process of providing guidance on the preparation of prospective financial information (PFI).

7.6. Conclusions from the table

The risks, decisions and information from the table give rise to the following conclusions:

- The forecasting of financial information, opportunities and risks is essential. This is hardly a surprising conclusion since the main purpose of the board is to make decisions and decisions can only change the future.
- Realistic forecasting to the appropriate accuracy is required, possibly for several scenarios, for example depending on the outcome of Brexit.
- An independent forecasting team is required, not swayed by unrealistic projections by management. This team would effectively be a 'Forecasting Accounts' team alongside Financial Accounts and Management Accounts (depending on the size of the organisation).
- The ICAEW Exposure draft on *Guidance for the preparers of Prospective Financial Information (PFI)* lists the following attributes and principles, which should be followed by the forecasts:
 - **Relevant**, because PFI is prepared on the *user needs* principle so it has the ability, in a timely manner, to influence its users' economic decisions and has predictive value or confirmative value for its users. (Includes my characteristics of relevance and timeliness)
 - **Reliable**, because it is prepared on the principle that it is supportable or based on sound *business analysis*. (Includes my characteristics of accuracy and completeness)
 - **Understandable**, because it is prepared on the principle of containing *reasonable disclosure* about what it relates to, its risks, uncertainties and mitigating actions. (Covered by my methodology)
- **Comparable**, because it is prepared on the principle that it is capable of *subsequent validation* by comparison with historical financial information. (included in my requirements for forecasts)
- While it may be very difficult to produce forecasts with any degree of meaningful accuracy, attempting to produce accurate forecasts may result in learning more about the business. For example, if a major advertising campaign is to take place the forecasting team will consider

past campaigns and their effect on sales and profits. It might provide a revelation.

- Special action teams may be required to manage some opportunities and risks. Their membership could be decided in order to undergo training on how to deal with particular scenarios, such as suppliers using underpaid labour or dangerous practices.
- Detailed historical accounts are not required. No decisions will change them. Members of the board may consider historical accounting information necessary in order to spot trends and anticipate problems. However, the past may be no guide to the future. It should be the responsibility of the forecasting team to anticipate the future and justify their conclusions. If the forecasting team are going to find it difficult to produce accurate forecasts, directors are not going to succeed by going through pages of a board pack in a few hours.
- May need to set up other board committees (Audit Committee, Risk Committee, Social Responsibilities Committee) who report exceptions to the board.

7.7. The board pack contents

7.7.1 For each board meeting

- Forecasts of future financial results with the following characteristics
 - A forecast for each major scenario which might be faced by the organisation. For example: Brexit; new taxation rules, launch of a new drug.
 - Comparison with targets, showing variances
 - Action being taken to achieve targets, if appropriate, by whom and timescale
 - Preferably in the same format as the management accounts
 - The degree of accuracy is no more exact than necessary, or can be achieved given the uncertainty of the future.
 - Explanations as to why any previous forecasts were incorrect and how they might be improved
- (Note that the traditional comparison of expected actual for the year against budget is not a forecast but a wish with probably little foundation).

- Approval of major expenditure, presented as a standardised report with benefits, costs, financial modelling results, opportunities, risks and their management.

7.7.2 Exception reporting as necessary

- Reasons for 'nasty surprises', failure to operate within legislation, failure to trade responsibly. Preventing future exceptions. What to tell stakeholders and the public.
- Competitor activity; major changes in the trading environment; new legislation; tax changes and their effects on forecasts.
- Significant new opportunities or risks and how they are being managed.
- Audit reports highlighting serious deficiencies.
- Regular reports from Board Committees highlighting exceptions.
- Supporting functions failing to deliver their responsibilities.

7.7.3 'One off' reports

- Approval of strategy and objectives to be passed to the whole organisation.
- Reports from independent consultants onto new opportunities or past disasters.
- How to react to 'PR disasters'

8. More examples

Practical Illustrations

I've written the following illustrations to provide examples of how the principles might work in practice. I have not assigned each part of the illustration to a principle; you can do that without my help.

Please read them and see how your information needs might be changed.

The illustrations are:

Soccer score

A simple piece of information. Who uses it? Why?

To catch a plane

The importance of ensuring that you know how the information which you provide is to be used.

Supertanker

A lumbering beast which takes a long time to respond to the helm. Know any organisations like this?

Management Accounts

You don't need to be an accountant to understand this illustration. However, it will help you understand why the number of personal computers and the number of accountants on this earth bear a close relationship...

8.1. Soccer score

When I first started to consider the problem of what information people need, I decided to try and find a simple piece of information and look at who used it and why. I chose a soccer score:

NOTTINGHAM FOREST 3 DERBY COUNTY 3

Who might be interested in it and why?

Football supporters	Go to the next game?
Football Association (F.A.)	League table changes necessary
TV, radio, newspapers	What score to publish
Team managers	Whether to resign?
Players	Look for a transfer?
Gamblers	Claim for winnings
Police on duty at the ground	Which supporters might give trouble
Armchair supporter	?

All of the people interested in the information, except the last person who never goes to a match, make decisions based on it. Hence I deduced the link between information and decisions. The armchair supporter might look at the TV to find out the result but never uses it to make a decision. How many people who demand information are armchair supporters?

However, note that some of the people interested in the score would also require other information, such as previous scores, before coming to a decision. Thus, for them, the information above is incomplete.

What about the accuracy that the users require? The Football Association and media need the exact score but the police only need to know who lost.

When do the users require the score? The media and police require it immediately the game has finished, but theoretically the F.A. don't need it

until the end of the season, when they decide who is to be promoted or relegated to other divisions.

What about the armchair supporter? Well if he/she lives near the Nottingham Forest ground and doesn't want risk getting stuck in traffic on the way to the shops, he/she needs to know the score before the match starts. But the accuracy needed is only to know if Nottingham Forest's name comes first on the score line, since this denotes the "home" team. An interesting example of how gains in getting information quickly have to be balanced with a loss of accuracy.

8.2. To catch a plane

I have a friend who is an American, visiting the U.K. for the first time. He has been staying with me in Nottingham for 10 days, travelling around using a hire car, or trains. His flight leaves from Birmingham tomorrow, Monday, and he will drive the hire car to the airport and leave it there. He asks me,

'How far is it to Birmingham airport?'

Now the straightforward answer is 'About 50 miles'. But, in order to ensure this information is relevant, I need to know the decision which my friend wishes to make. I add 'Why do you want to know?'

He answers, 'My plane takes off at 11:00 a.m., which means I have to be at the airport at 9:00 a.m. I don't want to risk being late. When I looked at Google maps puts the time at less an hour and a quarter.'

I reply, 'That's not looking at Google maps at 8:00 in the morning. Unfortunately, the roads between here and Birmingham consist of several long traffic jams at that time on a Monday and you need to leave at least two hours in advance, especially as you have to park the hire car and leave the keys. So I would leave at 7:00'.

This example illustrates the importance of understanding the link between information, decisions and risks. My friend failed to tell me the decision he had to make, when to leave, and the risks surrounding the decision, he had to be at Birmingham Airport at 9:00 on a Monday morning. If I had only answered, 'About 50 miles', he could have missed his plane, or at least have had a worrying journey.

So I answered '...at least two hours' because that was as accurate as I could be. There would have been no point in answering one hour, fifty-five minutes and twenty seconds because I couldn't predict the journey time that accurately and it would give a false impression of how certain I was of the timing.

When did my friend want the information? Well, he had to know when to leave, so he would know when to get out of bed – so there would be no point in telling him the following morning. However, there would be time tonight to check on the road news to see if there were any road works which would make the journey even longer! For this reason there would also have been no point in him asking the question two weeks before he arrived in the UK.

What we didn't do was spend a long time discussing whether it would take $1\frac{3}{4}$ or 2 hours to reach the airport. We started at the information known accurately, the time the plane was to leave and worked back. The best solution? Leave at around 6:30 to beat the traffic and have a leisurely breakfast at the airport.

8.3. Supertanker

If you are the captain of a supertanker sailing down the English Channel, any decision you take now about changing the direction of the ship will not happen for about 15 minutes, because it is so heavy. Thus the information relevant to you is that required for forecasting and where you have been, and where you are now, are only important in knowing where you will be.

In practice, since the ship is so heavy it is not easily manoeuvrable and the decision on the course will have to be made many hours in advance and the necessary information is required then. You will agree this with the Navigating Officer and he/she can give the helmsman the necessary commands. Since the decision on the course is made well before a change in direction, there is no need to haul the Navigating Officer out of bed to make it. A few hours will make no difference – assuming you have recognised the need to plan!

Contrast this with the situation that a ship has altered course and could collide with you in 10 minutes. You would wish to know of this risk immediately in order to take appropriate action, such as telling the other ship to change course.

In both the above situations it is the helmsman who needs the information promptly!

However, you don't wish to know the position of all ships in the area, that job is delegated to the Navigating Officer. The information relevant to you is about those ships which could be a risk and where you have to make a decision.

If the Navigating Officer told you not to worry, as the ship on a collision course would miss your ship by 38.236m, you might be a bit suspicious. How could he possibly calculate the figure that accurately, given the uncertainties in the speed and direction of the other ship? You would be right in suspecting that he really didn't understand the figure he was providing and the uncertainties inherent in the calculation.

However, you do want to know about the risk of collision. What's the most accurate information? Your own course and speed. Knowing this, and the position of the other ship, which can be determined with reasonable accuracy from radar, you can determine the range of speeds and directions for which the ships could collide. If the course and speed of the other ship lies in that range, you had better give the captain of that ship a call.

8.4. Management accounts

Let's assume you have a target to increase sales of ice creams by 10% over last year's sales, by value. Each month you receive a report which shows the latest sales:

Sales for the last six months

Category	Current year to date	Last year comparison	
		£	Increase (%)
Chocolate bars	156,125	154,326	1.2
Toffees	45,237	43,289	4.5
Ice creams	259,431	260,581	-0.4
TOTAL	460,793	458,196	

This is accompanied by a longer report which splits each of the categories into individual products such as King Cones, etc.

What does this report show? Well you're in trouble – half way through the year and sales of ice creams have actually decreased. Can you base any decisions on this report, and the more detailed report which accompanies it?. No, not without asking for more information.

Why, in our example, do you require more information? Because you don't know why sales are low, what decisions have already been taken and what decisions are expected from you.

So what information should you have been given? Well, for a start, you don't need to know sales of chocolate bars and toffees because you are not responsible for them. You need more details, so you go to the longer report. This shows the sales of 300 products and, by closely reading it you notice all have sales increases of 5% except the three best sellers which show sales decreases of 20%. But you still can't make a decision because you don't know why sales have decreased. You ask your staff, who tell you that production

problems resulted in no deliveries to shops in the last month and your decision is required whether to demand compensation from your supplier. However, the report gives none of this information.

What's the alternative? You only need to know the sales of products where they fall outside the targets you set (e.g. if sales increase by less than 5%). Where they do, you want an explanation from your staff, details of decisions they have taken and, possibly, what decisions they want from you.

Wait a minute; won't that result in longer reports? Well you've removed all the information not requiring a decision and you could receive a verbal, not written, report.

This approach means that your staff, who probably prepare the report on a spreadsheet, also take more interest in its production, since they have to explain differences. It also gives them the opportunity to ask for a decision, which staff are sometimes reluctant to do.

Your staff probably work overtime to produce this report by very tight deadlines. You probably look at it when it arrives, and maybe ask questions to find out reasons for the poor sales, but it is very unlikely that any *decision* is taken as a result of the information for many days. If the decision is to demand compensation, it hardly requires staff to work overtime in order to give you the report a day early.

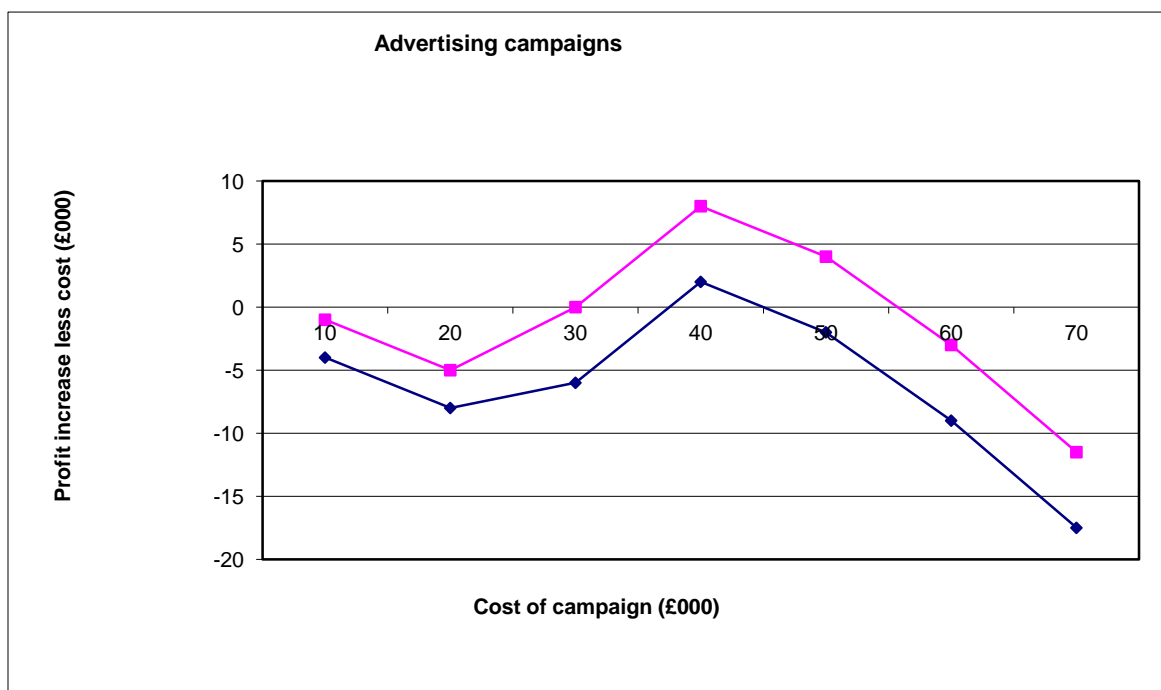
Let's suppose you now have to provide forecast sales and profits, after all expenses, for the next three years. Well, you assume sales will be £500,000 this year; profits will be £20,000 with a year on year increase of 9%. Put the figures into a spreadsheet and you can go home happy:

YEAR	2014	2015	2016
SALES	500,000	545,000	594,050
PROFIT	20,000	21,800	23,762

Except that, while the figures for year 2014 have a realistic accuracy, the figures for 2015 and 2016 are quoted to an accuracy far greater than possible. However, because they look accurate they give a false sense of security, whereas more realistic figures would give the impression of guesses. Which is, of course, precisely what they are.

Your boss asks you if it's worth carrying out an advertising campaign, which means that the profit increase has to cover the cost of the campaign. You could start trying to estimate what the sales increases from various types of campaign (TV, radio, newspapers) would be and calculate profit from these to give an idea how much you can spend.

Try working the other way round. You can't determine sales but you can set the cost of the advertising campaign. Thus you know this figure accurately. So using data from previous campaigns work out the best and worst cases for sales and profit increases for advertising at different costs. Draw a graph, which shows that you get the greatest benefit (i.e. profit increase as a result of the campaign, less costs) for a campaign costing £40,000. At best you will get an £8000 benefit, at worst £200



9. Version Control

Version	Date issued	Changes made
6	2015	
7	8 May 2019	Include chapter on board pack