



# Managing enterprise information

A guide to good practice

July 2020

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## About the author

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Martin has written four of the five books on enterprise search management, including Making Search Work in 2008 and the second edition of Enterprise Search in 2015. His report on Achieving Enterprise Search Satisfaction was published in 2018 and he is currently writing a book about the Enterprise Search Experience.

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He is a Fellow of the Royal Society of Chemistry, a Fellow of the British Computer Society and a member of the (US) Association for Computing Machinery.

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## Executive summary

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Organisations are usually very diligent in the way in which they manage corporate assets such as buildings, plant, computer servers and probably even individual chairs. Directly or indirectly there is a member of the Board that will take responsibility for these assets, making sure they are all accounted for and their value is reflected in financial statements.

Information is an asset that does not appear on any corporate record. This asset has been created over many years and is used every day by employees needing to make informed decisions that could affect both business performance and their own careers. Every corporate disaster is usually an outcome of either poor information quality or not being able to find the relevant information.

The purpose of this report is to illustrate the wide range of factors that should be taken into consideration in managing information in the enterprise. After an introduction about the value of information and about the need to assess information risk there are sections on governance, information behaviours, working in teams, information discovery, knowledge management and records management. Each section sets out what I regard as good practice based on over 100 information management projects I have undertaken in Europe and the USA over the last twenty years.

This good practice is presented as fifty recommendations, none of which involve any additional investment in technology.

At the heart of good information management is the recognition that every employee has a role to play in managing information and a responsibility to work to high standards of information quality. Organisations have charters for issues such as personal information, customer relationships and ethical business transactions. In Section 9 I have set out a ten-point information management charter.

To quote the former US Secretary of Defense Donald Rumsfeld, the greatest challenge that all organisations face is managing known unknowns and unknown unknowns. This will be especially difficult in the post-Covid19 years as organisations cope with achieving more with fewer employees (many of them in different roles and with different responsibilities) and almost certainly a loss of corporate expertise which may not be immediately obvious.

Can you afford to take the risk of making business-critical decisions during 2020 and 2021 without having the best possible information available to every employee?

Martin White July 2020

### Note

Throughout the report I have used 'document' as a generic term for any item of information. It could be (for example) a video, a photograph, a plan of a building or a legal opinion from a law firm. This range of formats is one reason why managing information is such a challenge, and also illustrates that it is not just about managing internal information but also managing information from sources external to the organisation.

*Version 1.0*

## Section 1 Making the invisible visible

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When we board an aircraft, we are very aware of the jet engine pods but have absolutely no idea of how they work, other than air is sucked in, heated and creates the thrust to move the aircraft forward. In reality, jet engine technology is at the leading edge of engineering and manufacturing technology and relies to a significant extent on corporate and personal expertise built up over many years.

The complexity of a jet engine is often only revealed when it fails to work as intended. To reduce the risk of failure telemetry data is transmitted to the engine manufacturer every 2.5 seconds. Key performance indicators are presented to the pilot.

In the case with information, we know it exists and we trust that it will be having a positive impact on the organisation. The major difference is that no one is monitoring the performance and optimizing operating conditions.

Information needs to be managed. The purpose of this report is to highlight the complexity of information use around organisations and make recommendations on actions that should be taken to enhance the impact of information, especially at a time when every organisation is faced with the need to rethink its strategy and its operations to respond to the challenges arising from the Covid19 virus.

### 1. Information is an asset

The Board of Directors always takes a very close view of the assets of the business. These typically include

- Financial assets that appear very visibly on the balance sheet
- Physical assets such as buildings and equipment, which are visible in terms only of their depreciation on the balance sheet
- Employees and the knowledge they have gained
- Goodwill and organisational reputation

It is impossible to imagine a situation where a company had built a production plant but had forgotten where it was located. It is also impossible to imagine a situation where all the employees in a country were no longer on the HR database.

No senior manager will know the extent of the information assets of the company, even though they will include

- A wide range of reports and briefings written over the last ten years
- Collections of product designs, test results and customer feedback
- Business intelligence on markets, competitors and customers
- External information feeds on market developments
- Market research reports commissioned from external agencies

They will also have no indication of the scale of investment in employee time that has been made in creating this information over many years. Putting a cost-per-document is not a useful measure. The issue is one about whether the time has been well spent. Are documents being written because the employees cannot find what they are seeking and so have to 'replace' it? That could be a significant opportunity cost as the time could have been devoted to other activities. It could also be that they have found a version of a document but are not sure whether it is the most recent. All too often a document may only have a department as the 'author' and so there is no way of quickly checking if there is a more recent version. If time is pressing the employee will just have

to assume there is no more recent version and potentially make a poor decision with implications for the organisation and for their own reputation.

## Recommendations

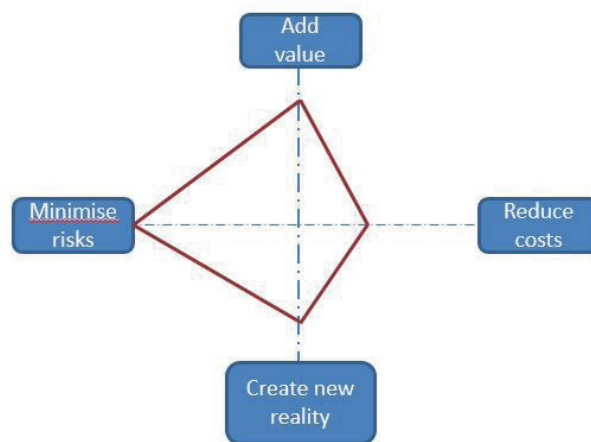
- 1-1 Add 'information management' to the Board Agenda on at least a quarterly basis
- 1-2 Appoint a Director to take responsibility for all information assets with a particular focus on information quality

## 2. The business value of information

The value of information is a function of how much use is made of it in achieving corporate objectives. From 1997 – 2000 the IMD Business School in Lausanne undertook a project entitled "Navigating Business Success". This innovative study examined for the first time the perspectives of senior managers on the effective use of information, people and IT capabilities in improving business performance. The study involved 1200 managers and over 200 senior management teams from 103 companies. The study showed beyond doubt that information was crucial to gaining a competitive business and market position.

The diagram below shows the four ways in which information can increase the competitive position of an organisation. The extent to which each of these has an impact determines a point on each of the four axes. These points will be different for each type of organisation.

The schematic below might be representative of a high-street bank where costs have been kept under constant scrutiny but there is a very important emphasis on minimising risks to the bank. However the bank also needs to develop innovative products and add value by providing a range of supporting services to customers.



This can be a useful schematic to use for a discussion about the high-level objectives of an information management strategy.

The outcomes of managing information effectively include

- Information can be better shared between teams and departments to improve decision making
- Non-compliance with regulatory requirements will be minimised
- Information about external factors such as competitor initiatives and market changes can be made more quickly and widely available
- Fewer errors will be made so ensuring higher quality deliverables to customers

- Sensitive information can be managed to avoid internal and external embarrassment
- Erroneous or out-dated information can be discarded to avoid inappropriate decisions being made
- Employees do not waste time trying to find information, and when not finding it then do not know whether it does not exist or the discovery applications are ineffective.
- Risks to operational performance are minimised.

Information risk is an assessment of the likelihood that someone will make a sub-optimal decision because they have not been able to find and take into consideration the most relevant and trustworthy information that the company possesses.

In 2000 the Millennium Bridge across the Thames in London had to be closed three days after opening because the bridge wobbled from side to side as pedestrians tried to walk across. About 100,000 people crossed the Millennium Bridge when it opened on 10 June 2000, causing the sway. New suspension components had to be designed and installed and the Bridge was not reopened until 2002. The Bridge had been designed by Arup and the Chairman of the firm commented at the time

*“Since Arup had begun its investigation into why the bridge was wobbling, it had discovered examples of the same effect throughout the world. One bridge in Canada, which was 100 years old, wobbled for the first time when a large crowd gathered on it. In New Zealand, the Auckland harbour road bridge on North Island, started swaying in 1975 when it was used for a protest march. The problem occurs only when an unusually large number of people use a bridge at the same time.*

*“We were lucky nobody got hurt,” Emmerson said. “That could have happened.”*

On 2015 PwC and Iron Mountain released a report entitled ‘Seizing the information advantage: How organisations can unlock value and insight from the information they hold.’

The findings of a global survey of 1650 businesses were

*“Just 4% fall into the ‘information elite’ category. The information elite have well-established information governance insight bodies, strong value realisation cultures and allow secure access to those with the necessary skills. This minority of businesses are attaining a range of commercial and operational benefits as a direct result of their strong focus on information value.”*

The report goes on to state

*“We have identified a large ‘misguided majority’ – three in four businesses (76%) that are either constrained by legacy, culture, regulatory data issues or simply lack any understanding of the potential value held by their information. They have little comprehension of the commercial benefits to be gained and have therefore not made the investment required to obtain the information advantage.”*

The starting point for the management of information risk is the corporate risk register. Many of these risks will have a significant dependency on the availability of high-quality internal and external information. The information management actions that should be taken to either track the potential onset of a risk or to ameliorate it should be clearly identified, and ideally set out in a corporate information risk register.

## Recommendations

2-1 Discuss at Board level which of the key business objectives are dependent on the availability of reliable internal and external information

2-2 Review the corporate risk register and identify which risks arise from, or are exacerbated by, a potential lack of quality information

2-3 Create an information risk register and review it on a regular basis

## 3. Developing exit strategies from Covid19

As a result of the Covid19 virus every organisation is having to plan from Base Zero. Corporate risk registers will have to be totally reworked, inevitably highlighting situations where a lack of dependable information and knowledge is putting the company at risk. Any failure to find information, knowledge and expertise could put the company at immediate risk in this challenging period

The planning has to ensure that

- The company quickly regains its market position
- It has the flexibility to meet new challenges, perhaps at very short notice
- It can support employees working in offices, remotely and from home
- Employees taking on new roles and responsibilities can access information that in the past they did not have permission to access, and therefore do not know it exists.

Many employees may have to be made redundant, taking with them important expertise and a knowledge of the company's information resources

Going forward the internal structure of all organisations is going to change over the period from now to perhaps the end of 2021. It is highly likely that it will be mixed-mode, and comprise

- Working from home for part or all of the working week
- Working in an office on a part time basis and with socially-distanced colleagues
- Working with employees on site in manufacturing and other specialised locations
- Working remotely on client and customer sites as permitted

In all four modes employees will also be taking on new roles and responsibilities and perhaps working on tasks and topics that they are unfamiliar with whilst not being able to take advantage of on-site training and on-going mentoring.

The challenge organisations face in supporting the new normal is that they have very little information on what the old normal was in terms of the information eco-system and enterprise information management. A great deal of attention has been paid to ensuring that employees working at home remain productive but there seems to have been no consideration about the quality of the work and the extent to which the quality has been compromised because of the difficulty of finding the best possible information.

Managing information is much more than managing Microsoft O365. Organisations often do not appreciate the range of other information applications their employees depend on, such as enterprise resource planning, human resources and product life cycle management. They also do not appreciate the extent to which the best-performing employees and departments may have developed workarounds to overcome information management challenges.



## Recommendations

3-1 In planning for 2020/2021 include a consideration of the extent to which a lack of high-quality information could jeopardise the speed and scale of the adaption to the outcomes of Covid19

3-2 Initiate discussions to assess where workarounds to business processes could jeopardise the speed and scale of the adaption to the outcomes of Covid19

## Section 2 Governance

Because information is ubiquitous across the organisation responsibility for managing it tends to be at a micro-level within a team or department. There is rarely any overall guidance on (for example) information quality good practice. Although there might well be a Chief Information Officer they rarely have responsibility for information, only the technology that facilitates the creation and storage of information.

### 4. The information management portfolio

The purpose of an information management strategy is to

- recognise that information is a strategic asset of the organisation
- set out policies and processes to manage this asset
- define roles and responsibilities
- establish technology and training requirements
- monitor the effectiveness of the policies and processes.

It is neither feasible nor desirable to try to write a information management strategy that deals with all aspects of what is a very broad range of topics. Especially over the next year or so there will be so many changes in business priorities and requirements that a single Information Management Strategy will quickly be overwhelmed with revisions and scope notes.

As the diagram suggests it is better to see information management as one of a set of documents which cover some topics in more detail.



The examples in the diagram are for illustration and will depend on a range of factors, notably the compliance regime that the organisation operates under. When considering who should 'own' information management it is advisable to have a senior manager acting as a portfolio owner of a range of related strategies.

The responsibility is to make sure there are owners of the individual topics, that there is a constant dialogue between them and a flexibility to change the scope of the strategies and policies to meet business requirements. It is all about fitness to purpose and not fitness to a specification.

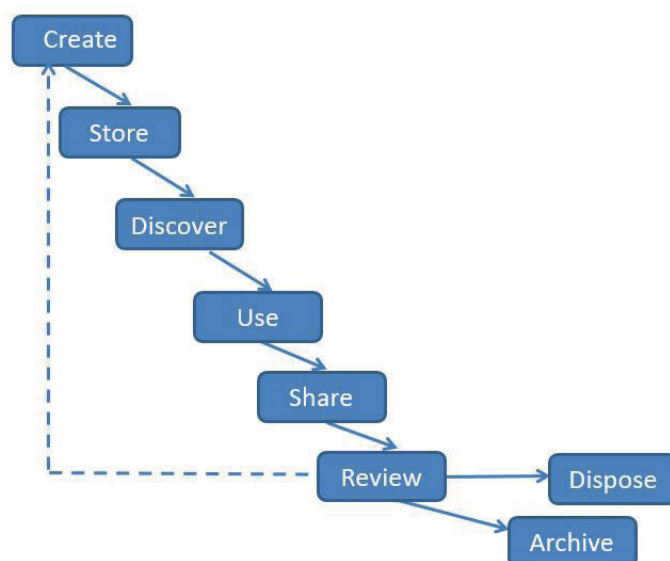
### Recommendations

4-1 Appoint a senior manager who has a direct reporting line to the Board of Directors as the owner of the portfolio of strategies

4-2 Decide on the scope of the individual strategies and consider the extent to which there are existing strategies that could be enhanced to bring them to a common level of quality and relevance

## 5. Information life cycle

A very useful approach to begin a discussion about managing information is to consider the life cycle of information.



- **Create** Guidelines have to be established for the use of local vs English language, version control, importance of metadata, writing for a specific audience, protective marking and ownership of the document.

- **Store** Documents should be stored to support browsing through collections, access by search applications and to be compliant with security and disaster recovery management.

- **Discovery** Employees should have access to applications that enable them to rapidly locate the information that they need to make informed decisions. If information cannot be found then it cannot be used and it cannot be shared. A wasted asset.

- **Use** Documents can be used only subject to rules on confidentiality, copyright, security and personal privacy (GDPR). Use needs to be facilitated by the document being presented in a format that encourages and facilitates access to the information.

- **Share** The default should be that information is available to all employees unless there is a business case for protective marking. The extent to which information can be shared with third parties should be clearly defined.

- **Review** On an appropriate basis the document needs to be reviewed, and a decision made on whether the document needs to be revised and reissued, defined as a business record and managed under a corporate Records Management policy or disposed of securely.

- **Dispose/Archive** Because the cost of computer storage is so low, in relative terms, there is a tendency to store everything. This becomes a problem with the Discovery applications as sets of results may list reports have long since been overtaken by time and knowledge but users, especially those new to the business, will not be aware of their potentially dangerous irrelevance.

It is important to appreciate that in all organisations there are many different types of document. Each of these types has a specific format, the content will be presented in a different style for the prospective readership (e.g. Internal vs customer) and there will be different workflows through perhaps a number of departments and contributors.

A core element of the information management policy is to differentiate between controlled and uncontrolled documents.

The definitions of the main categories of controlled documents are

1. Documents that will be used to establish contracts to supply products and services.
2. Documents that will be used to purchase products and services from a supplier,
3. Documents relating to internal areas of operations that are subject to compliance, notably corporate policies about employee contracts and responsibilities,
4. Documents that have a restricted circulation

All these documents potentially put the organisation at risk; this is why they need to be controlled with due diligence. Starting with this category of documents will reduce risk but also provide templates, procedures and policies which can be applied gradually to other types of document.

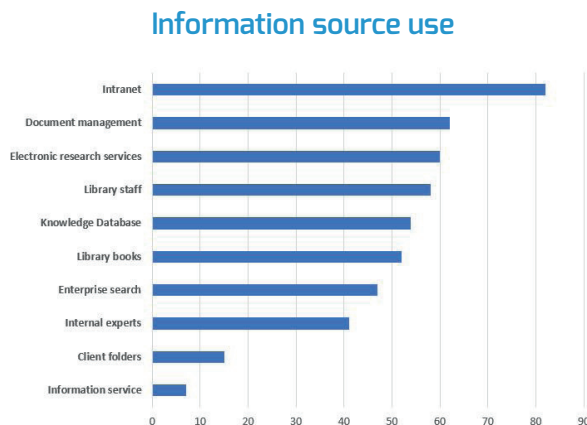
## Recommendations

5-1 Define which documents should be designated as Controlled Documents

5-2 For each collection of these documents agree protocols that define their ownership, authorship, scope, format, sign-off, circulation and eventual archiving

## 6. The enterprise information environment

The chart below comes from research carried out on a regular basis by a global law firm and shows the relative levels of use of the main corporate applications. 'Electronic research services' are external databases of legal cases. 'Electronic closing binders' are client files.



Most organisations will not have this level of detail about the frequency of use of information resources which would enable priorities for access and support to be considered in the context of the business objectives of the organisation. In the example above the high level of use of library books might well come as a surprise, but in law there are many important books which summarise and interpret judgements made over many years that could serve as precedents for a court case.

This chart illustrates the range of information applications within an organisation which has a very strong business focus. In many organisations there will be multiple business operations, each of which will have their own portfolios of information resources. Returning to the information management portfolio, in some organisations the requirement for external information is so important that it might benefit from having its own strategy and owner.

There are four primary categories of information within any organisation.

**Internal information** related to organisational performance and internal management. Many employees in support roles working with systems that are based around defined workflows may well only use this category of information.

**Integrated internal information** is used by managers to assess the performance of teams, departments and projects against objectives. This category is created by managers bringing together a range of internal information and identifying trends, issues and risks.

**External information** comes from sources external to the organisation, such as news, market surveys and competitive assessments. This category also includes briefing papers from external advisors and compliance authorities.

**Strategic information** is used by senior managers and Board Directors in making near and long-term business decisions on how best to achieve the expectations of shareholders and stakeholders. Often this will be synthesised for ease of discussion at a Board meeting and the sources of the information used may not be visible to the decision makers.

## Recommendations

6-1 Use the framework as the basis of a organisation-wide survey to develop an understanding of the relative importance of information sources

## 7. Information audit

Business assets are always audited to ensure that the company has a comprehensive and accurate statement of these assets and the extent to which they may be depreciating. As a result, an organisations will know exactly how many pcs it owns and the date they were acquired, and indeed how many cafeteria tables it possesses.

It will have no details on the information it possesses other than possibly data on server storage capacities.

Auditing information assets is a very considerable challenge and starting bottom-up counting files and folders is not a sensible approach. Information audits should start at the top and then be worked down only when there is a clear business benefit in doing so. For example the audit might start with Controlled Documents (Section 6).

In Appendix 1 there is a link to top-level information audit for the Inter-American Development Bank which sets out the core internal and external information assets with a brief description of the particular characteristics of the information formats in each category. The Bank has just 2000 employees, most of whom will be involved to some extent in making decisions which could affect the economic development of member countries. Recognising this the Bank has made significant investments in both information and knowledge management.

## Recommendations

7-1 Prepare (or commission) a high-level audit of corporate information assets along the lines of the IDB example

7-2 Based on this initial audit and the results of the survey in Recommendation 6-1 consider which categories should be subject to a more detailed audit in due course

## 8. Roles and responsibilities

Information pervades the organisation. The Board of Directors, managers, employees and indirectly business unit teams have a responsibility for managing information at a personal, business unit and corporate level.

### Directors

The Board of Directors should

- a) Visibly and constructively support the evolution and adoption of good practice in information management
- b) Endorse an information management charter (See Section 9)

### Employees

All employees should

- a) Treat information as a corporate asset
- b) Take personal responsibility for the information they create, capture or maintain
- c) Take personal responsibility for their role in the effective management of business unit information
- d) Make information accessible to those that require it to fulfil their duties

### Managers

All managers should

- a) Take responsibility for the management of information created and used within their own areas
- b) Ensure that this information is accurate and fit for purpose
- c) Ensure that the information has appropriate access and security permissions assigned
- d) Encourage the sharing of information and knowledge

### Business units

The management teams for each unit will

- a) Establish a consistent approach to good information management practice within the unit.
- b) Ensure that all employees are able to allocate the time needed to create and review information
- c) Report back on the need for changes and additions
- d) Identify the need for training to develop and improve the information management skills in the business

## Recommendations

8-1 These roles and responsibilities should be recognised at Board level but implemented through the management structure.

8-2 The performance of these roles and responsibilities should be a component of job descriptions and job evaluation assessments

## 9. A corporate information charter

Many organisations have charter/policy documents about topics such as ethics, data privacy and customer satisfaction. The information charter set out below is a summary of the roles and responsibilities in Section 8 and also reflects some of the topics covered later in this report.

The text of such a charter would be along the following lines

### **Our commitment as the Board of Directors to all our employees is that they can**

1. Find the internal and external information they need to make effective business decisions that reduce corporate risk, enhance the achievement of strategic and operational objectives and enable them to develop their careers
2. Trust that information they find to be the best and most current available
3. Publish information in a manner that it can be used effectively and with confidence by other employees
4. Ensure that the confidentiality and security of information is maintained
5. Readily contribute their knowledge, expertise and experience to all employees
6. Link to and contribute to internal and external social and business networks
7. Be confident that the roles and responsibilities of their manager include ensuring that their information requirements are recognised and addressed appropriately
8. Be assured that the organisation complies with all legal and regulatory requirements for the retention, use and transmission of information
9. Take advantage of training in how to be effective users and managers of information resources
10. Be aware of, and take the appropriate action, when the quality, availability and use of corporate information resources is being compromised.

### **Recommendations**

9-1 At a Board meeting consider each of these commitments and sign off the Charter as a corporate document

9-2 Ensure that all employees are aware of the Charter and what routes there are to identify concerns they have about non-compliance

## Section 3 Information behaviours

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How people need, seek, give and use information in different contexts together create a corporate information behaviour. The Fukushima Daiichi nuclear disaster was a nuclear accident at the Fukushima Daiichi Nuclear Power Plant in Ōkuma, Fukushima Prefecture. It was the most severe nuclear accident since the 1986 Chernobyl disaster, and the only other disaster to receive the Level 7 event classification of the International Nuclear Event Scale.

A research project investigating the extent to which information behaviours had an impact on the disaster notes

*“The findings also show a correlation between the information behaviour leading to the Fukushima disaster and escalation of commitment. The events at Fukushima were the result of an escalation of commitment to maintaining an image of nuclear safety which occurred over a long period of time. In escalation situations such as the one which led to the Fukushima disaster, the escalation of commitment itself is the most important factor in determining what information behaviours are enacted. In the case of Fukushima, escalation occurred over a long period of time, so belief in the safety of nuclear power was ingrained in the nuclear industry and there was little motivation for people to search out additional information about nuclear safety.*

*To acknowledge that nuclear power was not completely safe would be seen as a failure and therefore information which supported the current course of action was sought out, whilst information which did not was avoided, ignored or distorted. As time passed, those in power became less likely to consider alternative courses of action. Information avoidance behaviours were a major contributing factor to the disaster.”*

An information behaviour ethos pervades the organisation but will be invisible. It becomes transparent as good information management practices are introduced and then monitored for conformance and impact.

### 10. Information workflows and workarounds

The information workflows associated with the creation of a specific piece of information, are often invisible even to employees who are part of the workflow. A document may arrive by email from someone they do not work with, or even know, asking them to take a specific action and then forward the document to another person or department.

Invariably employees have to take information on trust. An email may ask them to insert the details of the 3465/19M module, which they duly action. But if the previous author had not checked on the model code and should have asked for details of the 3465/20M module the quality of the entire document is invalidated.

A feature of workflows is that when they become too time-consuming or fail to reflect changes in operational requirements work-arounds are devised. These workarounds are not documented because they may be contrary to the accepted wisdom of a more senior manager. The more talented and self-confident the workforce is the more likely that workarounds have been developed. These workarounds may inadvertently compromise information security, regulatory compliance and ISO 9001 requirements. One of the imminent challenges arising from redundancies as an outcome of Covid19 planning is that workflows may be disrupted because the employees responsible for an element of a workflow may have left the organisation.



## Recommendations

10-1 For all Controlled Documents (Section 6) ensure that the workflows from scope definition to sign-off are agreed and documented

10-2 Ensure there is a process where workarounds can be identified and addressed without any recrimination as to how they have arisen

## 11. Information quality

When considering corporate assets there is always a need to decide which remain fit for purpose and which should be replaced. Information has no decay period; a document dating back a decade or more might suddenly be very relevant in resolving a product design challenge.

There are six common outcomes of a failure to recognise the importance of maintaining high levels of information quality.

Three of these outcomes relate to presentation quality.

- **Conciseness** – the information is widely dispersed throughout a document, making it time-consuming for a user to be sure they have found all the relevant information
- **Presentation** – the information is presented in a format that is not easy to use, for example a PowerPoint presentation which has been rendered as a pdf so that copying and pasting important content is very time-consuming.
- **Understandability** – the information is written in a way that makes it difficult for a user who is not familiar with the topic to understand it. This is common in the medical sector where the use of clinical language and in particular abbreviations and acronyms can be a significant barrier to comprehension.

Three further outcomes relate to the content quality

- **Completeness** – a document refers to a further document which the user does not have immediate access to
- **Relevance** – it does not immediately enable the user to take a decision because (as an example) the information refers to the situation in the business several years earlier and may be longer applicable
- **Timeliness** – the information may not be the approved version

Many organisations are compliant with ISO 9001:2015 for quality management systems. Clause 4.4 Quality management systems and its processes requires the organisation to “maintain documented information to the extent necessary to support the operation of processes and retain documented information to the extent necessary to have confidence that the processes are being carried out as planned.”

Controlling documents is a key requirement of ISO 9001:2015 (Control of Documents’ (4.2.3)), and one of the required six documented procedures is the Document Control Procedure (4.2.3). The standard specifies that seven controls should be defined within the procedure.

These controls are

1. To approve documents for adequacy prior to issue
2. To review and update as necessary and re-approve documents
3. To ensure that changes and the current revision status of documents are identified
4. To ensure that relevant versions of applicable documents are available at points of use
5. To ensure that documents remain legible and readily identifiable

6. To ensure that documents of external origin determined by the organisation to be necessary for the planning and operation of the quality management system are identified and their distribution controlled
7. To prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.
8. apply suitable identification to them if they are retained for any purpose.

In developing processes and procedures for managing information the problem with ISO 9001:2015 is that the standard only considers the quality management processes and neither the quality or availability of information, especially in the cases where compliance with the standard is not a requirement. Financial information is just one example.

### **Recommendations**

- 11-1 Consider the extent to which ISO 9001 procedures could be more widely extended across the business even if they are not subject to a formal audit
- 11.2 Set out some criteria for the quality management of the categories of information covered in the information audit
- 11-3 Ensure that there are well-defined quality standards for Controlled Documents

## **12. Digital literacy and wellbeing**

The term 'digital literacy' is a measure of the ability to both understand and use digitised information. Developing digital literacy is not simply about a defined skill set. It is a complex mix of developing knowledge, building confidence and raising awareness that encompasses practical skills, how to find and store information, how to evaluate the veracity and quality of digital information, the effective use of digital applications in collaboration and communication, and a cultural and social awareness of both the benefits and impacts of digital applications.

There is a tendency in organisations to assume that everyone is an expert information manager but that is not the case. Invariably companies offer a wide range of training courses but never in personal information management or in the effective use of information-specific applications such as intranets and search. Search satisfaction scores for enterprise search applications show that a lack of training is a major factor in employee dissatisfaction with the application.

A couple of years ago the Danish Police developed a new intranet and search application. The level of adoption was disappointingly low until the intranet team placed guidance information alongside the coffee machines to remind staff of the capabilities of the application. Usage increased exponentially.

### **Recommendations**

- 12-1 Review the availability of training courses in all areas of information management
- 12-2 Working with HR introduce and promote the concepts of digital literacy and digital wellbeing
- 12-3 Ensure that managers take care to identify where individual employees are unable to work to their full potential because of digital literacy and digital wellbeing issues

## **13. Languages and cultures**

As organisations make increasing use of teams, often virtual, the problems of finding a working language are now becoming increasingly important. The performance of teams depends totally on the ability of team members to communicate effectively, and to be able to base decisions on the best available information regardless of language.

Global multi-national companies inevitably operate in multiple languages. These can be categorised into

- the parent company language (PCL)
- a common corporate language (CCL)
- multiple local (foreign) languages.

A parent company language (PCL) is that which is used by the majority of parent company employees at work. It is often the language spoken at the headquarters company and is often an official language of the nation in which the parent company operates. In addition there is a common corporate language (CCL) which is the default global operating language. In the case of US and UK companies the PCL and the CCL are English.

Language	Content items as % of total	% speaking the language as their primary language
English	73	24
German	13	25
Spanish	4	11
Portuguese	3	4
Japanese	2	6
Italian	2	5
French	1	6
Chinese	1	4
Polish	1	3

The closer operations are to customers the more important it is to support a local language. Many companies have multi-lingual web sites but rarely match the range of languages on their intranet or enterprise search applications.

This table shows the languages of the content of around 100 million items in the repositories of a large German company. Although 73% of the content is in English only 24% of the employees have English as their primary language. This is a particular challenge in searching the content as employees may not have the command of English words, syntax and abbreviations to refine queries.

Gradually organisations are beginning to appreciate that they have to support a range of local languages. This appreciation is often driven by enterprise social networks appearing in multiple languages. However, there is often a lack of recognition that employees may have different levels of competence in their ability to speak, read, write and listen to a language. The challenges are especially obvious in team working, where some very pragmatic decisions need to be made about what the team working language will be, which may well be different from the language used in reporting up or down to employees affected by the outcome of the team's work.

As a result companies are now starting to develop formal language policies which take account of the levels of language competence and the impact of technology in supporting a range of working languages on a global basis. Implementing these policies will require there to be training and support in working in two or more languages and monitoring the success of these initiatives on achieving corporate objectives.

## Recommendations

13-1 Consider the implications of languages on overall operational effectiveness at both HQ, local and remote locations.

13-2 Recognise the implications of employees having different levels of competence in their ability to speak, read, write and listen to a language, especially with regard to working in teams

13-3 Discuss, confirm and publicise a corporate language policy at both an HQ and at all operations world-wide

## 14. Security and confidentiality

ISO/IEC 27001 provides requirements for an information security management system (ISMS), though there are more than a dozen standards in the ISO/IEC 27000 family. Using them enables organisations of any kind to manage the security of assets such as financial information, intellectual property, employee details or information entrusted by third parties. The focus is on preventing unauthorised access to the information assets of the organisation.

The standard does not set out any recommendations for information confidentiality – who is permitted to see specific items of information. This is the role of a protective marking scheme.

Within an organisation there is a commensurate requirement to define information security into some different categories.

**Public** - information that can be made available to any member of the public and any customer and supplier

**Internal** – content can be accessed and used by any employee of the firm for the roles and responsibilities they hold but not transmitted to any person who is not an employee unless there is a Non-Disclosure Agreement in place.

**Confidential** – content that can only be accessed by a defined group of users. The list of these users should be presented on the document so it is clear to all members of the group to whom the document is being shared. This category also includes information that is confidential to a specific client or customer.

**Restricted** – content that is of such commercial or technical sensitivity that it is stored in a secure server environment and audit logs are applied to note who has received and opened the document.

Ideally the access permission level must be shown in the footer of each page (physical or digital) of the content item. This so that content available only to users with either Confidential or Restricted access permission is not inadvertently circulated to users with a lower level of access permission.

Often these categories are ‘managed’ through email distribution lists but this is not a satisfactory approach. The email might refer to the information being sent on a confidential basis but there is no indication on the document that this is the case, and either intentionally or inadvertently this information is then circulated more widely. It can be instructive to carry out searches for query terms such as [confidential], [redundancy] and [salary] and review the documents presented to see if breaches of internal security have taken place.

## Recommendations

14-1 Review and if needed revise the internal protective marking schemes, especially for Controlled Documents

14-2 Ensure that the security trimming on IT applications, especially search and collaboration applications, supports the protective marking scheme

14-3 Run regular searches using search terms such as [confidential] and [redundancy] to assess whether the security trimming is effective, especially on older content.

## 15. Data privacy and data protection

The scope and implications of GDPR in the EU and equivalent regulations in other countries are so broad that in the context of an information management strategy all that needs to be emphasised is that all IM actions need to be undertaken within the provisions of the legislation. In many organisations the major challenge is in working with operations based in the USA which has quite limited corporate data privacy regulations. Legal staff need to be closely involved in the development of information management policies and procedures.

## Recommendations

15-1 Ensure that managers with specific responsibilities for data privacy and data protection are closely involved in information management

## 16. Usability and accessibility

The term “usability” started to be widely used in the early 1980’s to refer to what was then a number of vague and subjective attributes of a product, collectively known as “user friendly characteristics”. This marked the beginning of an important shift from a phrase that focused on the features of the interface of a product to a term that was becoming concerned with the various facets of the interaction as seen from the human action perspective. Increasingly this now seems to be subsumed into the ‘Digital Employee Experience’.

The definition set out in International Standards Organisation’s recently revised standard ISO 9241-210:2019 Ergonomics of human-system interaction — Part 210: Human-centred design for interactive systems. Usability is a measure of the effectiveness, efficiency and satisfaction with which specified users achieve specified goals in particular environments.

When it comes to ‘accessibility’ World Wide Web Consortium (W3C) defines it as an attribute through which “people with disabilities can perceive, understand, navigate, and interact with the web, and they can contribute to the web”. Web accessibility includes all types of disabilities that impact access to the web and thus includes visual, auditory, physical, speech, cognitive and neurological disabilities and adherence to web accessibility principles also benefits elderly users.

The World Wide Web Consortium (W3C) has set up the Web Accessibility Initiative (WAI) which publishes the Web Content Accessibility Guidelines (WCAG) – a set of guidelines with the aim of making the web content more accessible to people with disabilities and indirectly to users in general. Recent research indicates that the impact of dyslexia on the use of digital applications is much more significant than has been the case in the past, and that it could be that 1 in 8 employees may have some degree of dyslexia.

## Recommendations

16-1 Ensure that all IT applications conform to the provisions of the WAI recommendations.

16-2 Survey employees to identify particular applications or sub-routines that they find difficult to use

16-3 Set up a programme to monitor current and new applications for conformance to WAI Guidelines

16-4 Pay particular attention to the needs of staff with dyslexia

## Section 4 Working in teams

There is a distinct tendency to use the terms 'collaboration' and 'team working' as being synonymous. As the schematic in Section 17 shows there are a number of distinct ways in which teams are built and operated and these all need to be considered in preparing a collaboration strategy. Although working in teams is now becoming a core approach to organisational management rarely is there a Director of Collaborative Working that sets out good practice.

The fundamental issue with working in teams is that the benefit to the organisation is not a function of the number of teams, the size of the teams and the number of meetings the team holds. Since the advent of Covid19 in early 2020 the scale of use of video meetings has increased markedly but there are already concerns about the number of these meetings and whether they have made a contribution to the initial survival and prospective redevelopment of the organisation.

### 17. Collaboration

One of the major changes in organisations over the last decade, and especially the last five years, has been the widespread adoption of collaborative working and collaboration applications.



This C-Stack shows that collaboration is an end point, not a starting point. The journey starts with ensuring that working in teams is encouraged and supported. Having the technology is not the starting point. It should support the journey. The encouragement should come from the role of an employee in a team being recognised and supported, with good channels of open communication between the employee, the team leader and their manager. Problems often arise because the team leader and the manager have different objectives, perhaps because they work in different departments or roles and they themselves report to different managers.

The next issue is how are teams assembled. Democratic teams representing every conceivable aspect of the work of a team often end up being too large to be effective. Everyone on a team has to feel they are there for a purpose and that they have a significant contribution to make to the team.

Conversations are important in two ways. The first is in building good relationships between team members before, during and after a team meeting. Remote team working is difficult enough as it is without team members meeting each other for the first time when the Zoom screen goes live. The second is that teams depend on a command of both language and the jargon. Both can be a barrier to working together.

In many cases a team is there as a means to improve coordination. An example could be creating the design and content for the annual report of the organisation. A high degree of give and take may well be called for but there is no common objective between individual team members other than their own contribution.

Collaboration is about actively and reciprocally engaging in joint activities aimed at achieving at least one shared goal. Every member has to feel that working at maximum effort will be of ideally equal benefit to themselves and to everyone they are working with. This is where 'team working' when there is no shared goal and shared benefit should not be defined as 'collaborative working'.

Despite the widespread adoption of team working as a means of maintaining at least some momentum during the Covid19 infection few organisations have someone with the responsibility for ensuring that teams are working effectively and that adequate training and support is being provided. One of the major problems in optimising team and collaborative working is defining a success metric. Adoption levels are not a good metric.

### **Recommendations**

- 17-1 Recognise that 'collaboration' is much more than staff working together in teams
- 17-2 Prepare a collaboration strategy that sets out good practice and some metrics for success of collaborative working
- 17-3 Ensure that there is adequate training available, especially for leaders of virtual teams



## Section 4 Information discovery

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As is shown in the Information life cycle in Section 6 information discovery is the step between storing information and being able to find and use it, and then share it with colleagues. When documents are written the authors will not be aware of the value of the information they contain to others in the organisation, perhaps in several years' time. If the information is invisible to the organisation because of poor information discovery applications then it does not exist. This may seem obvious but the emphasis is invariably about writing and then storing the document where it can be of immediate use to perhaps a small number of colleagues with no attention being paid to the wider and longer-term relevance of the information.

### 18. Information discovery

The process of information discovery is not just about using a search application. A substantial amount of information is being pushed to employees through enterprise applications such as HR, ERP, CRM and many financial applications. The challenge is as much about managing this flow of information as starting from a base of zero information and having to search for it.

This information gap could be filled by (as examples)

- Reading through documents we have stored on our personal or team files
- Using an enterprise application (HR, ERP, e-Learning etc)
- Sending an email to one or more people we know
- Taking to a colleague or an acknowledged expert
- Posting a request on a social media channel
- Browsing through an intranet
- Checking through a department or team wiki
- Asking for assistance at the next team meeting
- Searching on the web

As a result the process of search is usually about filling in gaps, and the search user usually has a good knowledge of the subject at the start. When they do search they may not click on what the search application has determined are relevant documents. This is because they already have them. Seeing them is primarily a reassurance that the query is valid. Many employees are in effect professional searchers. Examples would be research scientists and clinicians, patent agents and lawyers. They have a high requirement for the recall of all relevant documents, not just one or two.

### Recommendations

18-1 Prepare a search strategy that covers user requirements for internal, intranet and web-site search

18-2 Invest in a search team that brings together skills in IT support, information science and user requirements analysis

18-3 Determine and support the requirements for professional search

### 19. Personalisation and customisation

There is some dispute about the definitions of these terms. For the purposes of this document personalisation refers to processes which are under the control of an individual to ensure that they receive only information that is relevant to them. Customization refers to information that is of value to a number of employees, often performing similar roles and having similar responsibilities.

The danger in both cases is that the volume of information delivered by a system is reduced but the recipient may then not be aware of related information that might provide context or stimulate innovation. This is a particular issue with customisation as the users of the system may well have had no role in defining the scope of the customisation.

In the case of personalisation the danger is that, especially for someone new to the company or to the position, the profile they developed on the basis of their initial requirements may not be adequate as they gain a better understanding of their role.

In the case of both personalisation and customisation it is very important that the decision tree behind the profiling is transparent and capable of challenge. This is especially important where Artificial Intelligence technology has been applied to deliver dynamically personalised information on the basis of prior use.

Post Covid19 the value of the prior use is questionable when so many employees may be taking on new responsibilities. There will almost certainly be a requirement to re-train any personalisation and customisation profiles to avoid decisions being made on the basis of information which is no longer relevant or of sufficient quality.

### **Recommendations**

19-1 The rule sets behind all personalisation and customisation features should be identified, reviewed and realigned with current and future expectations.

19-2 There should be a systematic assessment of how well the systems are adapting to meet emerging requirements so that there is the minimum delay in taking action to ameliorate any issues that have inadvertently arisen.

## Section 5 Knowledge management and records management

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The borders between information management, knowledge management and records management are very blurred and any information management initiatives need to take into account the way in which knowledge and records are being managed. Interestingly there are international standards for both knowledge management and records management processes though not for information management.

### 20. Knowledge management

A detailed consideration of knowledge management strategy is outside the scope of this report for reasons of space and not because knowledge management is of less importance than information management. Each depends on the other, and in the process of reconsidering an information management strategy it is essential that it is carried out within the context of knowledge management.

In 2018 the International Standards Organisation published ISO 30401:2018. The Introduction states that

*“Knowledge is an intangible organisational asset that needs to be managed like any other asset. It needs to be developed, consolidated, retained, shared, adapted and applied so that workers can make effective decisions and take aligned actions, solving problems based on the experience of the past and new insights into the future. Knowledge management is a holistic approach to improving learning and effectiveness through optimization of the use of knowledge, in order to create value for the organisation. Knowledge management supports existing process and development strategies. As such, it needs to be integrated with other organisational functions.”*

The standard defines requirements in the areas of organisational context, leadership, planning, support, operations, performance evaluation and improvement. Each of the 50 requirements sets out practices which must be present and functioning in a compliant KM programme. It should be noted that the standard sets out what should be done but not how to do it. For guidance on the latter the KM Cookbook is an excellent guide, full of case studies.

### Recommendations

20-1 Ensure that the corporate knowledge management strategy reflects the guidance in ISO 30401:2018

20-2 Ensure that the information management and knowledge management strategies are aligned, especially around expertise identification and sharing.

### 21. Records and archives

The final element of the information lifecycle comes when a decision has to be made about whether the document is retained as a business record, is disposed of, or is reviewed and re-published. These are not decisions that can be made without agreed corporate policies for retention periods and locations.

As with knowledge management there is an ISO standard for records management. ISO 15489-1:2016 defines the concepts and principles from which approaches to the creation, capture and management of records are developed. It describes concepts and principles relating to the following:

- records, metadata for records and records systems
- policies, assigned responsibilities, monitoring and training supporting the effective management of records
- recurrent analysis of business context and the identification of records requirements
- records controls
- processes for creating, capturing and managing records

As with ISO 30401 it is not mandatory that a company has to be compliant with ISO 15489. However, the management of records does have to meet regulatory compliance requirements in terms of financial documents and associated contracts, licences and agreements that provide context for financial compliance audits.

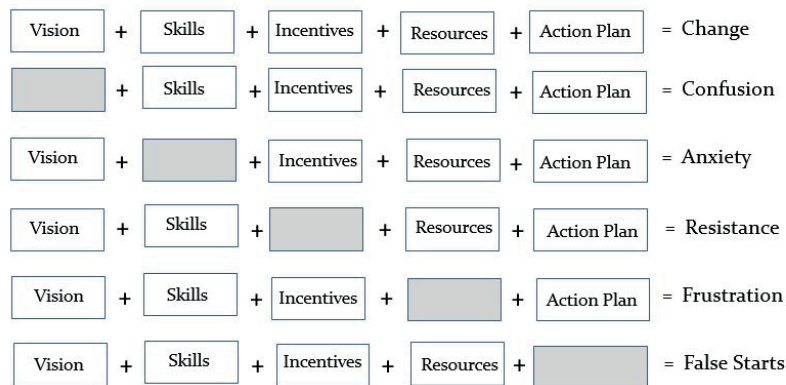
### **Recommendations**

21-1 Ensure that the corporate records management strategy reflects the guidance in ISO 15489

21-2 Ensure that the information management and records management strategies are aligned.

## Section 6 Implementation

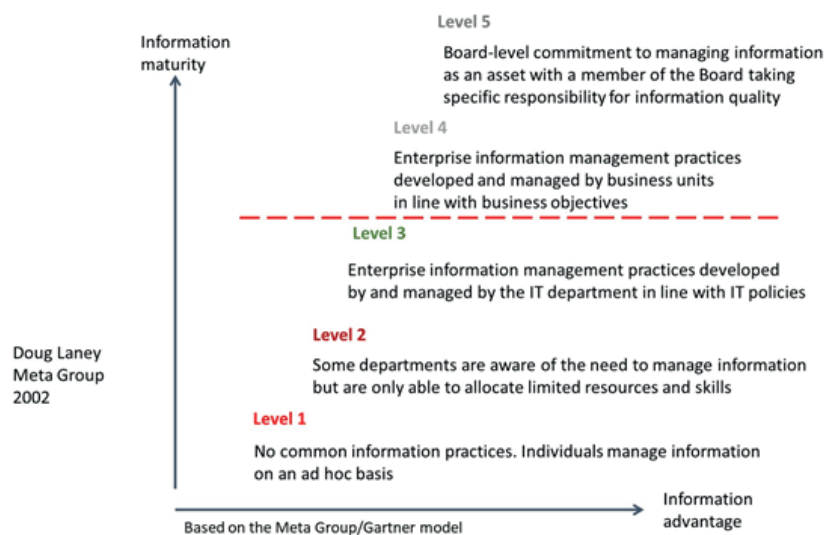
It is not uncommon for information management initiatives to fail to have an immediate impact and so they are often discarded as having no value. Managing the change process has to be carefully considered. A useful schematic to frame a discussion about managing implementation is shown below.



Adapted from T. Knoster, R. Villa, and J. Thousand. "A Framework for Thinking About Systems Change." In R. Villa and J. Thousand, eds. *Restructuring for Caring and Effective Education: Piecing the Puzzle Together*. Baltimore: Paul H. Brookes Publishing Co., 2000

## 22. Information management maturity

One of the earliest information management maturity schematics was developed by Doug Laney at the Meta Group in 2002. The most important step in the process of achieving IM maturity is the transition from an IT-owned strategy to a business-owned strategy.



The situation that organisations at Level 1 find themselves in is well-described by in the PwC/Iron Mountain report referred to earlier.

- Information and exploitation of value from information is not a priority for senior leadership
- An information governance oversight body, if it exists, is dominated by IT
- Limited appreciation of how to exploit their information or the business benefits of doing so

- Progress is allowed to be held back by legacy issues, regulatory issues and resources
- Where resources are deployed to exploit information, this is often IT led, and is not linked to the overall business strategy
- Limited ability to identify, manage and merge large amount of data sources
- Analytical capability may exist in the business but is not focused on information value
- Excessive use of Excel spreadsheets with limited capacity to extract insight

There has been quite a lot of research into why information management strategies are rarely adopted and even more rarely have the envisaged impact. The main reasons for this are (in descending order)

- Enforcing the policies across the entire enterprise
- Gaining support from department heads and LOB managers as the benefits are seen to be long term rather than immediate
- Creating and achieving corporate standards and guidelines for classifying and tagging documents
- Funding for the initial research and subsequent training and communications
- Convincing senior management of the benefits of having an information management strategy
- Getting support from IT for text-based applications that they are not familiar with and have limited experience in specifying, procuring and supporting
- Deciding on the optimum route for adoption (usually specific country vs specific subsidiary) that will enable the implementation to scale across the enterprise.

Solutions to these barriers will depend on a wide range of factors around corporate culture and governance and it is not feasible to be dogmatic with advice.

## Recommendations

21-1 Recognise that implementing an information management strategy is a long-term project with long-term benefits to the business and to its employees

21-2 Be realistic about what can be accomplished in the short term, but start somewhere to build experience and visibility and to demonstrate the commitment of the organisation to managing information as a corporate asset.

## 23. And if we don't . . .

It would be understandable if having read this report and its 51 recommendations for action that you decide that there are more important priorities at present than taking action on these recommendations. The question you have to ask yourself is whether your organisation can take the risk of making decisions in the aftermath of Covid19 which turn out to be inadequate to achieve organisational success in such a novel and high-risk business environment.

### **None of these recommendations need any investment in technology.**

They are all focused on optimizing the management of the information processes set out in the Information life cycle in Section 5. They are also largely about empowering employees to take responsibility for the effective management of information because they see that this is now critical to the success of the organisation and their own career development. In taking this responsibility they are being led, encouraged and supported by the Board and by senior managers who are constantly exemplifying the information management ethos set out in the Information Management Charter in Section 9.

Over the last few years there have been two major corporate disasters that are a direct result of poor information behaviours and information management processes. One of these was the case of Volkswagen cheating emission tests and the other was the Boeing 737Max crashes. There are many others.

Can you take the risk that something like this could happen in your organisation when the costs of implementation are zero but the benefits could result in a more rapid and robust emergence from the global Covid19 economic challenges.

### **Appendix 1 Information audit example**

The information audit example can be found in Table 1 of an Annex to an Approach Paper: Knowledge Generation and Dissemination in the Inter-American Development Bank Group, published in 2017.

It can be downloaded from

<https://publications.iadb.org/en/approach-paper-knowledge-generation-and-dissemination-inter-american-development-bank-group>