XBRL: Deep-dive

Digital future of corporate reporting

December 2017
The possibilities of XBRL for corporate reporting – A foreword

Dear reader,

Bill Gates has often been quoted as saying that we tend to overestimate the short-term impact of technology and underestimate the long-term impact, but sometimes we just underestimate both the short and long-term impacts.

A fine example of this is the humble barcode. Barcodes were a technology which took the distinctly human capability of reading and understanding product information and made it machine readable. Progress was slow, and barcodes took decades to move from original development to widespread adoption. Once adopted, barcodes went on to revolutionise the retail supply chain and led to new kinds of business inconceivable in a pre-barcode world. Similarly, eXtensible Business Reporting Language (XBRL) has the power to be a transformative technology for corporate reporting: the way that it is produced and consumed. Over the last twenty years XBRL has become widely adopted for corporate reporting purposes. It has enabled analysts to process vast quantities of financial data in minutes which frees up time to consider qualitative information such as a company’s strategy and business model. Yet across Europe access to this data is relatively limited, that is until now! The adoption of XBRL and the related IFRS taxonomy for the upcoming European Single Electronic Format will be a step change in its adoption for listed company reporting across over 7,000 companies in Europe.

“The IFRS Taxonomy is … on the verge of making a new quantum leap. The US Securities and Exchange Commission has recently mandated the IFRS Taxonomy for the filing of company reports by foreign private issuers. The European Securities and Markets Authority (ESMA) is looking to do the same in Europe….”
Hans Hoogervorst (Chairman of the International Accounting Standards Board).

However, while there is much promise, there is also considerable potential for the adoption of XBRL not to deliver. Technology can only go so far to meet the needs of the corporate reporting community. Good technology needs to be supported by good adoption choices at the company, national and international level. While technology can certainly help create an effective system of reporting, it needs to be supported by a concerted effort from regulators and others to align reporting requirements and remove barriers wherever they exist.

Corporate reporting which remains founded on a paper-based annual report is no longer tenable in a modern digital world. Slowly, standard setters and lawmakers around the world are recognising this. However, it is preparers and consumers of corporate reporting data who need to help shape the adoption of technology in corporate reporting by going further than the basic mandate and telling regulators what they want and need.

I commend the Lab in producing this report. It is not designed to be a homily to XBRL, but it is intended to highlight that XBRL is an important technology for corporate reporting and that action is needed if it is to live up to its potential.

Mohini Singh, ACA

Biography

Mohini Singh is Director of Financial Reporting Policy at the Chartered Financial Analyst Institute, which represents more than 145,000 investment professionals around the world.

Mohini represents membership interests regarding financial reporting and disclosure proposals issued by the FASB, the IASB, and others. She holds the Associate Chartered Accountant (ACA) designation.

CFA and XBRL

The CFA Institute has been a long time supporter of XBRL and has provided comment to the SEC and ESMA on various aspects of XBRL programmes.

Mohini has blogged widely on XBRL, highlighting the needs of investors and the value that good quality XBRL data can bring.
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### What is the Lab?

The Financial Reporting Lab was established by the Financial Reporting Council to improve the effectiveness of corporate reporting in the UK. The Lab provides a safe environment for listed companies and investors to explore innovative reporting solutions that better meet their needs.

Lab reports do not form new reporting requirements. Instead, they summarise observations on practices that investors find useful to their analysis and encourage companies to consider adopting these practices if appropriate in the context of their own reporting. It is the responsibility of each reporting company to ensure compliance with relevant reporting requirements.

Published reports and further information on the Lab can be found on the FRC’s website: [www.frc.org.uk/Lab](http://www.frc.org.uk/Lab)

### Do you have suggestions to share?

The Lab encourages readers of this report to provide comments on its content and presentation. As far as possible, comments will be taken into account in shaping future projects. To provide comments, please email us at: FinancialReportingLab@frc.org.uk
Digital technology and corporate reporting

Introduction

This report is released at a turning point in the use of technology in corporate reporting. A key piece of legislation called the European Single Electronic Format (ESEF) is expected to be finalised early next year and will be in operation by 2020. The legislation will drive a step change in the use of XBRL for the production and consumption of the annual reports for thousands of European listed companies. If implemented effectively, it will facilitate the use of corporate communication and data across Europe, truly digitally, for the first time.

Who should read this report?

Do not be put off by references to technology as this is not a technology report. It is a report about how corporate reporting might be optimised using technology. Given the significant changes that are coming, we think that this report should be read by all participants in the corporate reporting community including regulators, boards, preparers, design agencies, auditors and investors. It is intended to stimulate debate and act as a call-to-action for those who are stakeholders in corporate reporting to get involved as the requirements are being finalised in order to ensure that its implementation is most effective.

How should I read this report?

As with any report that is attempting to reach a wide and diverse audience this report strikes a balance between the detail and the bigger picture. Whilst we think that the core message should be clear to all, we have also provided helpful background material on regulation (Appendix 1), XBRL as a technology (Appendix 2) and terminology (Appendix 3). We would recommend that those unfamiliar with the topic might want to begin their reading with this background material.

Nature of the report

This report is very different from a traditional Lab report in that it does not directly present the views of participants. It provides a summary of the potential impacts and issues of the use of XBRL based on all of the outreach and discussions undertaken throughout the wider project.
Why it is important to look at XBRL now?

XBRL is a technology that has been talked about as important for the future of digitisation in corporate reporting for at least the last decade. It is already being used by millions of companies in some form of reporting across the world. So why is the Lab looking at XBRL now? It is because regulation is going to fundamentally alter the way that listed companies across Europe (including the UK) will report from 2020, and XBRL is at the heart of this change.

Our approach and core message

This report considers some aspects of the proposed regulatory changes (including ESEF), the abilities of XBRL and the qualities that preparers and users want from a digital reporting system. It identifies and highlights a number of crucial decision points for companies, regulators and others.

Overall, we conclude that XBRL is an important gateway technology for digital corporate reporting. It offers many potential benefits for preparers and consumers of corporate reporting. However, these benefits are not guaranteed.

The potential for XBRL to truly deliver for preparers and consumers will need a sustained focus from all those concerned and will need leadership and innovation from regulators, companies, investors and technology providers. In particular, we conclude that successful implementation will require the following actions:

- **Regulators/standard setters** – Regulators need to work together both nationally and internationally if XBRL reporting is to fully optimise the reporting process for preparers while still working for users of corporate reporting.
  - Specifically, we recommend the formation of a single committee in the UK with representatives from each of the regulators and government (such as FRC, HMRC, ONS, Companies House, FCA and BEIS). The committee would have the mandate to explore the potential benefits of driving digital reporting in the UK, facilitate cross-regulator working to ensure that the adoption of ESEF (or a UK alternative) is efficient and effective, and engage with the wider reporting community.

- **Technology community** – XBRL is reaching a critical juncture as widespread regulatory adoption will significantly increase the numbers preparing and using XBRL-enabled company data in Europe. To facilitate this transition, technology companies will need to support education of the business community and continue to innovate in the product space.

- **Companies/preparers** – Companies need to start thinking about ESEF, how they might implement XBRL and use all opportunities to get involved with the development of the technology and supporting regulation.

- **Investment community** – Many of the regulatory changes are being undertaken with a goal to increase access to company data in a usable format. Investors and analysts, as a key audience, should engage with regulators as they shape and implement the regulations.

Our detailed assessment

In this technology deep dive, the Financial Reporting Lab ("Lab") evaluated the role of XBRL and other supporting initiatives using our framework of future digital reporting. The framework was developed through extensive engagement with companies, investors and other relevant stakeholders. The framework consists of 12 characteristics that were commonly held to be critical for successful digital reporting. We grouped these 12 characteristics into three categories: Production, Distribution and Consumption.

XBRL measured up against the 12 characteristics as shown overleaf in Figure 1.
Quick read Cont’d

Figure 1: Summary of mapping against characteristics

Cost Efficient
XBRL can be delivered cheaply. Costs will be impacted by the approach taken on implementation by both companies and regulators.

Easy
XBRL is designed for today’s financial reporting. This aids understanding, but there is a learning curve for preparers and their boards.

Compatible
This depends on how companies choose to implement it and the willingness of regulators to standardise and align reporting requirements.

Timely
XBRL supports timely reporting but will necessitate a rethink by companies about the reporting process.

Accessible
XBRL is designed to facilitate search, but will need user-friendly search tools to fulﬁl its potential.

Compliant
XBRL supports, and can enhance compliant filing. However, filing requirements need to be optimised on a country by country basis.

Prompt
XBRL supports the rapid and widespread distribution of corporate reporting information.

Free
XBRL is a free and open standard, but the free distribution of usable data needs the support of regulators and innovation from data aggregators.

Engaging
Inline XBRL offers opportunities for companies to provide more tailored and engaging material to their audience, whilst also providing structured data.

Contextual
While XBRL is designed to embed context and structure within data, the scope of current mandates are unlikely to cover all the contextual elements that users desire.

Usable
XBRL usability will depend on optimising delivery, storage and consumption systems and tools.

Credible
As a digital technology, XBRL offers opportunities for filing mandates (such as ESEF) to add layers of technology and assurance to enhance credibility of reported information.
The importance of XBRL for digital reporting

Reporting in a digital age

ExTensible Business Reporting Language (XBRL) was proposed by Charles Hoffman in 1998. Put simply, XBRL is like a language, it allows companies to report business facts (“data”) and relational / presentational information about that data in a structured way. For example, it can tell that a fact reported is ‘gross profit’, that this fact is presented on the primary financial statements, and is calculated as ‘revenue’ minus ‘costs of goods sold’.

Since its introduction it has, through the work of the American Institute of Chartered Public Accountants (AICPA) and latterly by XBRL international and XBRL communities around the world, developed into a core technology for business reporting in the digital age.

Around the world

XBRL is currently used by companies to meet the reporting requirements of more than 100 different regulators in 70 countries either via mandation or on a voluntary basis. There is a wide range of regulators that use XBRL including tax authorities, securities and other regulatory authorities (particularly in the banking and insurance sectors). The majority of these initiatives use XBRL as the underpinning of their filing requirements but may adopt their own unique taxonomies to reflect their own reporting needs.

Whilst the most common use of an XBRL mandate is for private reporting to regulators, there are a number of markets where public securities’ filings are required in XBRL. Of these, the US is the most well known with over eight years of filings for listed companies. Japan, South Korea and China also have advanced public reporting XBRL programs.

Use in the UK

In the UK, around 2.3 million companies file financial information in iXBRL for the tax authorities, and almost 2.2 million also electronically file their accounts with Companies House (including many using a single template for tax and annual reporting). Those filing to Companies House do so using the FRC taxonomies (EU IFRS, FRS 101 or FRS 102). The majority of those filing are doing so as a separate exercise once the annual report has been created as either a word or PDF document.

Future use

One area where there has been little take up in the UK (and across Europe) is around the filing of group accounts and use by listed companies. Partially, this is driven by the lack of any mandate from HMRC, Companies House or the Listing Rules to file documents for these groups in iXBRL. However, listed companies (across Europe) will experience a step change with the introduction of mandatory filing of annual reports in a digital format for 2020 year ends. This change is part of the introduction of the ESEF being proposed by the European Securities and Markets Authority (ESMA). The ESEF is likely to require a single XHTML annual report with IFRS consolidated primary statements being tagged using the IFRS based ESMA taxonomy.

The introduction of the ESEF will drive significant change in how corporate reporting will be produced, distributed and consumed, but will it meet the ultimate needs of producers and users of corporate reporting?
What do stakeholders look for in digital reporting?

In May 2017, the Lab published a framework for digital reporting. Through extensive engagement with companies, investors and other relevant stakeholders, the Lab identified 12 characteristics that were commonly held by project participants to be critical for a successful digital reporting framework. We grouped these 12 characteristics into three categories: Production, Distribution and Consumption.

Some of the characteristics are embodied in the paper based system of reporting (although not necessarily as well as they could be). In other cases the characteristics represent a desired quality that technology is expected to fulfil.

This framework was not intended to represent a checklist or rigid set of criteria. Instead, it was created to provide a structure as we explore whether existing and future technologies might work effectively and to ascertain how they might complement each other. It is in this spirit that we use the framework to assess the potential that XBRL affords.

**Production** – This stage is focused on the collation, amalgamation, packaging and presentation of underlying financial and non-financial information from within a company or organisation with the express intention that it will be released externally. Production characteristics were of most interest to companies, and those supporting them.

**Distribution** – The stage is focused on the dissemination of the packaged information, both to meet regulatory requirements (e.g. National Storage Mechanism) and to communicate with external stakeholders. Distribution characteristics are of interest to both companies and those consuming the information.

**Consumption** – This stage is focused on the analysis and use of the distributed, packaged information. Consumption characteristics are of most interest to those utilising the information. These characteristics might attach equally to any individual piece of data, disclosure or document being used.

**Figure 2: The characteristics and stages of future digital reporting**

- **Production**
  - Cost Efficient
  - Easy
  - Compatible
  - Timely

- **Distribution**
  - Free
  - Prompt
  - Compliant
  - Accessible

- **Consumption**
  - Contextual
  - Usable
  - Credible
  - Engaging
How do XBRL and related activities measure up?

In this section we provide more detail about our assessment of XBRL and related activities against the 12 characteristics of the Lab’s reporting framework. The Red, Amber, Green (RAG) score has been determined by the Lab team following a series of interviews and roundtables. It is not intended to be conclusive or represent the collective views of all those who participated in the project (although it was informed by them).

Given that the focus of the FRC is on annual reporting rather than on other communication channels (e.g. investor presentations), we use that as the base case for analysis in the remainder of this section (although we do make references to other uses where relevant).

The following pages provide analysis covering the three stages of production, distribution and consumption in detail with an overall summary provided at the end of the section.
Production

The way that XBRL enabled data collection is implemented (by regulators) can have a significant impact on the usefulness that the resultant tagged data has for re-use of various types of reporting (for example internal reporting, statutory reporting, tax reporting, prudential reporting).

XBRL is built with today’s financial reporting in mind and so supports existing reporting frameworks, rather than seeking to replace them. For example, IFRS Taxonomy ® tags work together with the concepts and disclosures inherent within the underlying IFRS standards; the FASB has a taxonomy to support US GAAP, and Prudential Regulators own regulatory-driven taxonomies.

Having data in an organised, identifiable and structured way (which XBRL supports) should facilitate the reuse of that data across multiple reporting needs. However, this holds true only to the extent that different regulators align (or map) formats, reporting requirements and definitions.

This is currently not always the case. The various reporting taxonomies have largely been developed independently. This is not a technology issue but a long standing reporting issue that is exacerbated by the opportunities that technology provides.

There are some efforts to mitigate the challenges posed by this issue. XBRL international, for example, has undertaken some work on common libraries of tags. However, the only way to solve the problem is for regulators and standard setters to collaborate on taxonomy design and development.

Rating drivers

- XBRL is designed with financial reporting in mind. As such, it inherently supports financial reporting requirements. Because it is digital, it also supports multiple use of the tagged data (although this is somewhat dependent upon the way it is implemented, see ‘cost-efficient’).
- However, in itself, it does not remove the need to create separate reports and data sets for multiple regulators. Streamlining this process requires regulators to align reporting requirements, definitions and taxonomies.

Key Point: The real benefit of XBRL for preparers, in terms of reducing reporting burden, can only be delivered if regulators collectively work together to align reporting requirements, definitions and taxonomies.

- XBRL and iXBRL are technologies that need effective underlying reporting systems in order to be implemented. The ease or otherwise of XBRL depends as much upon the system and level of experience of those using it as the technology itself.

Key Point: Boards need to understand the ESEF process and the areas of judgement in order to provide appropriate levels of governance. The technology community should help regulators and others to get boards up the XBRL learning curve and consider how technology can support governance around tagging decisions.

Rating drivers

- As XBRL mirrors financial reporting standards, it is relatively easy for preparers to understand conceptually. However, the amount of specific technical terminology can give the impression that it is complex.
- Many in the UK have outsourced their implementation of XBRL. Given the price sensitive nature and tight timing of listed annual reports it is likely that many companies may seek to bring production in-house in the future. Developing skills in-house, and having XBRL as an element of routine business processes will likely enhance the opportunities to re-use the structured data.
- With the introduction of the XHTML/XBRL annual report for ESEF, this becomes the principle document under the transparency directive (rather than the PDF). Boards will need to demonstrate an appropriate level of understanding and governance over the XHTML/XBRL annual report. Boards may therefore need to educate themselves over the format, the processes and procedures in place and any areas of specific judgement (such as anchoring and extensions to the taxonomy).
**Production**

The cost of producing an XBRL (XBRL, iXBRL or XHTML) report is dependent upon the complexity of the output and the way it is produced.

For the purpose of our analysis we identified two main types of outputs and two main approaches to producing files.

Because the main mandate for reporting using XBRL in the UK is iXBRL, it is primarily this type of output file we have considered (although this is also relevant for ESEF which uses XHTML combined with iXBRL).

The two types of output are:
- **Plain iXBRL files** – Files that are basic in format and structure. These are akin to plain word documents (this is the most common output).
- **Designed iXBRL files** – More advanced files with significant graphic and other design elements. These are akin to ‘glossy’ annual reports or advanced webpages (this is the less common output).

The UK and ESMA mandates are silent on the level of design that the files may contain. Boards should consider the level of design that they feel is most appropriate for the document which will be (from 2020) their official Annual report and accounts (ARA).

The two main production approaches are:
- **Post-production** – The XBRL document is produced using a base document (e.g. ARA) that has already been produced in another format.
- **In-Production** – The XBRL document is produced alongside the creation of other documents in other formats.

### Rating drivers

<table>
<thead>
<tr>
<th>Post-production: Tagging after a document has been produced is relatively cheap and well trailed in the UK for plain outputs. A higher level of designed content, however, is likely to require specific HTML design skills. This can increase production costs significantly.</th>
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<tr>
<td>In-Production: Tagging, as part of the production process for the reporting document (in-house), is more expensive initially. However, it is likely to result in a better quality and more flexible output. Reporting systems that allow design and tagged content to be produced are likely to be developed.</td>
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A different approach would be for a company to consider the XBRL reporting requirements as just part of the overall need for structured data for management and regulatory reporting. There are a number of initiatives in this vein around the world that consider XBRL as a core component.

### Key Point:
Preparers need to understand the costs and benefits of the choices they make for implementation. Technology providers and design agencies need to work together to produce software that works for both.

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<th>Cost-efficient</th>
<th>For plain iXBRL file</th>
<th>For designed iXBRL file</th>
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<tr>
<td><strong>Post-Production</strong> (non systems approach)</td>
<td>relatively low cost</td>
<td>potentially costly</td>
</tr>
<tr>
<td><strong>In-Production</strong> (systems approach)</td>
<td>more expensive</td>
<td>less costly</td>
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Production

The degree to which XBRL production methods can assist timely production is dependent upon how XBRL is implemented within an organisation.

Rate drivers

A Where a post-production approach has been adopted, the ability of XBRL to reduce the reporting timeline is removed. It is likely that post-production tagging will be an additional burden on the company or its service providers (due to cost and effort).

G Theoretically, where XBRL is implemented in an in-production approach (tagging at source) the production of a disclosure document should be quicker than building disclosures in excel. However, for multiple reporting this would be dependent upon a consistent scope of reporting (year on year) with a well understood disclosure document.

With the introduction of the ESEF by ESMA, preparers will need to consider how to fit additional production work and governance steps (around the ESEF and the judgements within it) into already very tight reporting timelines. This may be challenging and, as such, early engagement with design and tagging service providers and auditors is advisable.

Key point: Preparers should start to discuss the timeline of ESEF with design, audit and other service providers.

The ESEF will need to be filed to the NSM and the Stock Exchange.

It will be companies' official ARA under the Transparency Directive.

It should be in place by 1 January 2020.
**Distribution**

XBRL structures financial information in a way that reflects the current structure of financial reporting. This should make the information relatively accessible to the user.

**Rating drivers**

- **Accessibility**: XBRL is designed to facilitate identification of information.
- **Compliance**: XBRL is ideally suited to the creation of financial reporting taxonomies.
- **Prompt**: XBRL as a digital format supports prompt distribution.
- **Free**: Provision of free company level data supported by regulation.

**Key Point**: For the XBRL/ESEF mandate to achieve its full potential it needs to be supported by powerful National Storage / Officially Appointed Mechanisms that operate at an aggregated data level.
Consumption

Digital reporting should facilitate the ability for companies to engage with their audience. The early stage of the Digital Future project identified two almost conflicting desires from the differing communities in relation to engagement.

Preparers identified the importance of maintaining the ability for them to tailor and design the financial reporting content in a way that best ‘told their story’.

Investors and other users highlighted that standardisation assisted them in their ability to utilise the reported information.

Whilst the current paper/PDF paradigm tries to balance these two opposing perspectives within the body of the ARA, it can be difficult to achieve.

XBRL might better balance ‘telling their story’ and standardisation.

**Key Point:** Full benefits for users may only come when tagging is undertaken across more data points and disclosures than envisaged in the current scope of ESEF.

**Rating drivers**

- **XBRL mandates such as ESEF’s XHTML allow preparers the full flexibility of HTML in producing their annual report and telling their story. However, it also provides users with structured data in a consistent form and within a standard taxonomy (albeit with the ability to extend). This structured data should provide an easy entry point for those wishing to analyse a company’s data.**

- **Potentially, XHTML allows even greater levels of engagement for the user. A user of the digital ARA could view those elements of reporting that were of most interest to them and in whatever way they wanted.**

- **Whilst this user-driven vision of an ARA has certain attractions (especially for users), this is likely to require a significantly larger scope of tagging than is envisaged by the current ESEF mandate (e.g. full notes and management report).**

**Users and other stakeholders regularly identify the context of reported information as being essential to their understanding.**

- **Types of context that are useful include:**
  - Report type / boundary
  - Period
  - Accounting framework
  - Audit / assurance level

- **Under the current system of reporting, this context is provided as an integral element of a document (e.g. the annual report PDF). However, this single document concept is not reflective of how information or data is used in the digital world. Data is often consumed as individual elements or collections of elements rather than as a whole document.**

- **XBRL as a tagging technology can provide much of the desired context at a more granular level than traditional ARAs by attaching context to individual pieces of data. This is a powerful benefit of XBRL, especially when data is being consumed outside of the ARA wrapper. However, not all elements (e.g. audit status) are currently included.**

- **Where the tagging mandate also includes the narrative and other elements (which ESEF does not), users should have access to data and its full context. Providing context to individual data points can make XBRL particularly powerful and valuable, better reflecting the way that users consume financial information.**

**Rating drivers**

- **XBRL provides key elements of financial context at a granular level**

- **Able to provide other elements of context but not mandated**
Consumption

Usable

- XBRL is up-loadable
- XBRL is widely used, but different scopes limit the degree to which it is universal
- XBRL enhances search

Digital reporting should be usable, up-loadable, universal, searchable and intuitive.

Overall XBRL fulfils these objectives:

Usable

- XBRL is widely used, but different scopes limit the degree to which it is universal
- XBRL enhances search

The Intuitive nature of XBRL depends on delivery systems

However, it is important to remember that XBRL does not improve the comparability of the underlying financial information being expressed, rather it facilitates the ability to use the structured data.

Universal – As the requirement to file in XBRL grows globally, the overall pool of tagged data available will become substantial. However, because of these different scopes and timings of mandates (US since 2007, EU from 2020), the ability to use data across different jurisdictions consistently is much more limited. It is likely therefore that use of the XBRL tagged data will work alongside traditional data sources.

Search – As a data standard, XBRL facilitates searching and provides a way of enhancing search by connecting key elements of context to individual pieces of data (or disclosures), but the ease of searching is dependent on the tools developed by both markets and regulators.

Intuitive – XBRL output mirrors financial reporting concepts. As such it is intuitive. But how easy it is to use will depend on the development of intuitive delivery mechanisms.

Credible

- XBRL is capable of being subject to assurance

Future digital reporting needs to engender trust by being immutable, assured and authentic.

Rating drivers

- Immutable/secure – Security is mainly dependent on the official appointed storage mechanism in facilitating a permanent and unchangeable record. Furthermore, formats such as ESEF, which include HTML, might introduce new risks in terms of cybersecurity.

- Communicate assurance – The main XBRL mandate currently in place (SEC) does not require any audit or assurance verification. The status for the ESEF is not yet finalised. This lack of assurance is often stated as one of the drivers of poor quality tagging. However, investors at least need to understand the level of assurance before they can comment on whether assurance is sufficient.

- Authentic – XBRL does not inherently meet this requirement as it is dependent on the storage or other distribution mechanism to ensure authenticity of documents. However, because XBRL mandates, such as ESEF, include the use of the LEI, it raises the potential for the combination with digital signatures and therefore could embed guaranteed authentication at both a data and document level.

Key Point: Regulators need to work together to achieve globally usable output. Users need to engage with regulators and clarify what they need, e.g. assurance.
Summary of findings

**Production**
- **Cost Efficient**: XBRL can be delivered cheaply. Costs will be impacted by the approach taken on implementation by both companies and regulators.

**Distribution**
- **Accessible**: XBRL is designed to facilitate search, but will need user-friendly search tools to fulfil its potential.
- **Compliant**: XBRL supports, and can enhance compliant filing. However, filing requirements need to be optimised on a country by country basis.

**Consumption**
- **Engaging**: Inline XBRL offers opportunities for companies to provide more tailored and engaging material to their audience, whilst also providing structured data.
- **Contextual**: While XBRL is designed to embed context and structure within data, the scope of current mandates are unlikely to cover all the contextual elements that users desire.

**Usable**
- **Usable**: XBRL usability will depend on optimising delivery, storage and consumption systems and tools.

**Timely**
- **Timely**: XBRL supports timely reporting but will necessitate a rethink by companies about the reporting process.

**Free**
- **Free**: XBRL is a free and open standard, but the free distribution of usable data needs the support of regulators and innovation from data aggregators.

**Compatible**
- **Compatible**: This depends on how companies choose to implement it and the willingness of regulators to standardise and align reporting requirements.

**Prompt**
- **Prompt**: XBRL supports the rapid and widespread distribution of corporate reporting information.

**Credible**
- **Credible**: As a digital technology, XBRL offers opportunities for filing mandates (such as ESEF) to add layers of technology and assurance to enhance credibility of reported information.

**Compatible**
- **Compatible**: This depends on how companies choose to implement it and the willingness of regulators to standardise and align reporting requirements.

**Distribution**
- **Distribution**: This depends on how companies choose to implement it and the willingness of regulators to standardise and align reporting requirements.

**Consumption**
- **Consumption**: This depends on how companies choose to implement it and the willingness of regulators to standardise and align reporting requirements.
Messages and conclusions

Messages for regulators and standard setters

The real benefit of XBRL for preparers can only be delivered if regulators collectively work together to align both reporting and filing requirements across multiple different regulatory bodies.

We recommend the formation of a single committee in the UK with representatives from each of the regulators and government (such as FRC, HMRC, ONS, Companies House, FCA and BEIS). The committee would:

- Have the mandate to explore the potential benefits of driving digital reporting and data re-use in the UK, and, where appropriate, align reporting requirements.
- Facilitate cross-regulator working to ensure adoption of ESEF (or UK alternative) is efficient and leads to effective and useful corporate reporting data.
- Consult with companies, investors and others on the above.

No single regulator can deliver the potential benefits of XBRL, either nationally or internationally. Users and preparers benefit when widespread global adoption of standards is also supported by tools, guidance and best practice. We recommend that accounting regulators around the world collaborate to support more standardised and interoperable reporting mechanisms (such as XBRL) more thoroughly.

Messages for the technology community

XBRL provides many benefits for preparers, users and others. However, in order to meet its full potential as a reporting technology, it also needs to be interoperable and open to other technologies and initiatives. Technology companies need to continue to support development efforts across the full ecosystem. We recommend that technology companies:

- Focus on the development of tools and packages that assist business non-technical users in producing, distributing and consuming the XBRL data.
- Develop educational materials, best practice examples and case studies to dispel concerns around complexity, cost and usability. These should also aim at getting boards up the learning curve.
Messages and conclusions Cont’d

Messages for companies

The use of XBRL is increasingly becoming a vital part of the reporting infrastructure (through regulations from ESMA, the SEC and others) that investors use either directly or indirectly (through data aggregators and innovative data services). With ESEF approaching in 2020, we recommend companies take all opportunities to understand and help shape the requirements by:

- Understanding the impact and opportunities of ESEF (and XBRL) – it will be a significant driver of change, and consideration should be given as to how it might be built into already tight production and governance timelines.
- Engaging with ESMA, the FCA and others where opportunities for consultation or field-testing exist.
- Developing a strategy at Board and Audit Committee level to consider how XBRL should be implemented. The flexibility, usability and cost will vary depending on the strategy adopted.
- Discussing their strategy with their design agency, audit firm, peers and other relevant advisers.

Messages for investors

Regulators require companies to use XBRL. However, if it is to be of value to investors, it needs to be focused on the right things. We recommend that investors consider:

- How the data might be used and engage with regulators accordingly as they develop the requirements.
- How access to free digital company data might allow unbundling of data services and spur innovation in data companies. If this is of value, investors should consider the optimal ways of using the available data and services and encourage others to innovate in the services they provide.
- Highlighting to companies the importance of quality data by asking companies for their XBRL files. Investors should also engage with regulators, auditors, assurance providers and companies so that the data is of value to the investor community.
Next steps

This report on XBRL is the first of a series of technology deep-dives. The next report will focus on Blockchain. Anyone who is interested in discussing AI, AR and VR for production, distribution or consumption of corporate reporting, should contact the Lab:

financialreportinglab@frc.org.uk

Once all the relevant technologies have been reviewed, we will pull together the key learnings from each report to create a vision for the future corporate communication process. This vision will not provide a definitive answer. Instead, its ambition is to generate debate and stimulate further collective action by regulators, companies, investors and others. It is only through such a process of collaboration that we will create a truly effective digital system of reporting that achieves transparency and integrity.

We hope to complete the entire project next year. If you would like to keep up to date with the work of the Lab, you can do so by subscribing to news from the FRC (use QR).
Appendix 1 - The changing regulatory landscape

NB: This appendix was drafted in November 2017. This was before the finalisation of the ESEF regulation and as such represents our understanding of the requirements based on the public documents available at the time.

A important driver of change in corporate reporting is the regulatory environment. Whilst there have not been significant moves towards digital reporting regulatory, changes are now underway that are likely to significantly alter the momentum towards digital reporting in XBRL and HTML.

Key changes include:

- SEC mandation of XBRL for Foreign Private Issuers \(^1\) who use IFRS (to be in place for 2017 year ends).
- The introduction of Legal Entity Indentifiers across G20.\(^2\)

Of the above, the ESEF is expected to be the most impactful for EU listed companies (including the UK).

**European Single Electronic Format (ESEF)**

In 2016 the European Securities and Markets Authority (ESMA) consulted on the introduction of a mandatory single electronic format for companies listed on EU regulated markets (in the UK this would be main market listings, not AIM) for the filing of annual reports and accounts (ARA). The outcome of the consultation and subsequent investigatory work undertaken by ESMA was the selection of XHTML (A hybrid of XML and HTML, for more details see glossary in appendix 3) as the required format for the full ARA with iXBRL tagging for selected elements of the report. The XHTML document would consist of:

- An HTML document replacing the PDF (or other format) ARA that companies currently file with their national storage mechanisms to meet listing requirements.
- Tagged primary IFRS consolidated financial statements using iXBRL and (after an undefined period) block tagging of notes.

The proposals would require an ESMA taxonomy to be used; based on the IFRS taxonomy \(^\circ\).

The proposals are designed to be in place for 2020 year ends and cover more than 7,000 listed companies across Europe.


The ESEF Regulatory Technical Standard (the proposal that will be given to the European Commission) is currently being finalised and is expected to be submitted and endorsed by the European Commission early next year. It will then be directly applicable in member states without needing any transposition.

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## Appendix 1 - The changing regulatory landscape Cont’d

### Features of XBRL regulatory mandates relevant to the UK

<table>
<thead>
<tr>
<th>Key features</th>
<th>HMRC Corporation Tax Returns</th>
<th>SEC – Foreign Private Issuers (FPIs)</th>
<th>ESMA rules as field-tested in Q2 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope</strong></td>
<td>All entities filing UK corporation tax return</td>
<td>FPIs reporting under IFRS</td>
<td>All listed consolidated financial statements</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>In place since 2011</td>
<td>Periods beginning on or after 1 January 2017</td>
<td>Periods beginning on or after 1 January 2020</td>
</tr>
<tr>
<td><strong>Taxonomy</strong></td>
<td>FRC’s FRS 101, FRS 102, UK IFRS, SEC’s US GAAP and Charities Commission taxonomies</td>
<td>IASB’s IFRS Taxonomy</td>
<td>ESMA Taxonomy (based on IASB’s IFRS Taxonomy)</td>
</tr>
<tr>
<td><strong>Format</strong></td>
<td>Inline XBRL (iXBRL)</td>
<td>XBRL, iXBRL optional, SEC currently consulting on mandating iXBRL</td>
<td>Inline XBRL (iXBRL)</td>
</tr>
<tr>
<td><strong>Tagging</strong></td>
<td>Full tagging</td>
<td>Full tagging</td>
<td>Primary statements only</td>
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<tr>
<td><strong>Extensions</strong></td>
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<td>Required</td>
<td>Required</td>
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<td>Not supported</td>
<td>Required</td>
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<tr>
<td><strong>Calculation Linkbase</strong></td>
<td>Not available</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td><strong>Audit requirement</strong></td>
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<td>No</td>
<td>Potentially</td>
</tr>
</tbody>
</table>
Appendix 2 - What is XBRL?

EXtensible Business Reporting Language (XBRL) was proposed by Charles Hoffman in 1998. Since then it has, through the work initially of the American Institute of Chartered Public Accountants (AICPA), and latterly by XBRL international and XBRL communities around the world, developed into a core technology for business reporting.

This appendix is not intended to give a detailed technical overview of XBRL, but to provide a high level summary. For those wanting a more in-depth description of XBRL, the website of XBRL International is a good place to start.

Put simply, XBRL is like a language, it allows companies to report business facts (“data”) in a structured way and relational / presentational information about that data. For example, it can tell that the fact reported is 'gross profit', that this fact is presented on the primary financial statements and is calculated as 'revenue' minus 'costs of goods sold'.

Moving reporting out of the paper age?

Over recent decades, as business has become more complex, so too have accounting standards, company law and filing rules. This evolution in reporting and regulation has allowed preparers to convey an increasing amount of detailed information in a structured way. Through this structure, it is hoped that users are able to understand and interpret the information.

The current system of reporting is predicated on the concept of a reporting document (in paper), which is consumed wholly. However, this is not reflective of how data is consumed by users and presents a significant challenge to the increasing desire from users to use more technology in the consumption, aggregation and analysis of business information. XBRL is one attempt to move the paper reporting paradigm into the technology age.
Appendix 2 - What is XBRL? Cont’d

Machine readable

The analysis and comparison of data works best when that data has been structured using a framework that is widely used and is machine readable. XBRL enables this.

A good analogy is that of the barcode. Barcodes are widely used as a way of encoding information onto physical items that a machine (often a till) can read. XBRL is like the technical specifications of barcodes; it does not say ‘what item’ should be coded or ‘in what way’ but simply provides an agreed structure.

The ‘what item’ and ‘in what way’ are provided by “taxonomies”. These are listings of tags that represent items specified in an underlying set of business rules. For example, there is a taxonomy for International Financial Reporting Standards (IFRS). This contains a list of tags for all items identified within the various IFRS standards and common reporting practice. Taxonomies can also contain relational elements of associations between pieces of data, and between data and external resources (such a legislative or regulatory documents). The relational and basic validation elements of taxonomies are called linkbases. It is important to note that taxonomies are not designed to be templates for reporting, but to simply provide a structure that allows the communication of those elements that need to be reported. Some taxonomies (such as the IASB issued IFRS taxonomy ®) allow preparers to extend (create) their own tags if they want / or are required to tag something that is not reflected in the official taxonomy. Others such as the UK taxonomies do not allow extensions. There is also significant difference in the granularity of different taxonomies.

As well as taxonomies, there may also be filing rules (such as those of HMRC) that specify a minimum amount of information that is required to be tagged within an XBRL document, or it may identify specific relationships that should exist between parts of a document, or define if preparers may extend beyond the taxonomy.

It is important to note that XBRL does not replace the current accounting and reporting framework (e.g. IFRS). It simply makes the information machine readable.
Appendix 2 - What is XBRL? Cont’d

Making XBRL visual

One of the challenges with creating a separate XBRL document is that, whilst machine-readable it is not readable to humans in an easy to view format. Inline XBRL (iXBRL) was developed as a way to mitigate this and make a single document that is readable to both humans and machines. It does this by creating the XBRL as a layer of information underneath a visual layer. Because the visual elements are produced using HTML (the language of the web), it can be viewed in a desktop internet browser. A single document can therefore be read by both human and machine users.

iXBRL is the way the implementation of XBRL has occurred in the UK and is being consulted upon by the SEC.

Figure 5: Tagging for machine and Human readability

Before tagging

After tagging

1. It is the same with Business Reporting data. It is easy for humans to understand the data from its context.

2. However for it to be consumed by machine a machine readable tag (XBRL tag) can be added.

3. By embedding the XBRL tag into an HTML iXBRL document the XBRL layer can sit underneath the human readable HTML layer, making one document work for both.

By embedding the XBRL tag into an HTML iXBRL document the XBRL layer can sit underneath the human readable HTML layer, making one document work for both.
Appendix 3 - Glossary

**HTML**

Hyper Text Mark-up Language = HTML is a standardised set of computer tagging languages that are used to create and structure the design elements of a webpage. The most widely used current version of HTML is called HTML5. This version has useful graphic, video and mobile content capabilities.

**XML**

eXtensible Mark-up Language = XML is a computer language that encodes a set of rules for making documents in a way that is both human and machine readable. XML's wide adoption facilitates data exchange between different products and packages.

**XHTML**

XML HTML = XHTML is a combination of XML and HTML that allows HTML to be extended using XML but retains the functionality and backward compatibility of HTML.

**XBRL**

eXtensible Business Reporting Language = XBRL is an XML based computer tagging language used to report business information in a structure that is consistent with the way that companies generally structure and report business information.

**iXBRL**

In-Line XBRL = iXBRL combines XBRL and XHTML so that the reported data is machine readable and also human readable. The human readable portion is viewed within an HTML page such as a webpage. iXBRL is the format required for reporting to HMRC for tax purposes in the UK. For an example of an iXBRL report see: https://www.xbrl.org/the-standard/what/ixbrl/

**ESEF**

European Single Electronic Format = ESEF is the official format which will be required for Annual Report filings of listed companies in Europe from 2020. This format was selected by ESMA and combines a full XHTML annual report with iXBRL tagged IFRS consolidated primary statements (using the IFRS based ESMA taxonomy) and after a further adoption period some elements of the notes.
Appendix 4 - Learning by doing

Given that there are very limited examples of Annual Reports that combine both HTML designed content with tagged data, the Lab decided to experiment.

Taking the 2015/16 FRC annual report as our base we worked with a software company to create an HTML report with tagged elements (using the UK FRC XBRL taxonomy). Our aim was to recreate the look and feel of the PDF annual report, but with some tagged data.

Undergoing the process helped us identify some key learnings that will be useful for those thinking about using iXBRL in a similar way, or those complying with the ESEF (see page 4).

There is a saying in tech: ‘Move fast and break things’ and this example should be taken in this spirit. It is not designed to be a perfect example of how things will work, but it was designed to get people thinking.

We have written a blog that provides details of our experience. However, key learning points include:

- Companies should start thinking about the process significantly before any implementation date.
- The cost is not insignificant, but much less than some have suggested.
- The time involved in creating the document from a finalised Annual Report was extensive (including several rounds of changes). Therefore, for those with tighter timetables, producing an ESEF file in parallel with a paper ARA, might be the most appropriate approach.
- The required XHTML/ESEF format is not the same as the current HTML5 and should therefore be factored into design.

- The output from the tagging process is not straightforward for non-technical users and requires some judgement.

The full blog is available on the Lab’s LinkedIn page:
The Lab has published reports covering a wide range of reporting topics.

Our most recent reports include:

- **Digital Future**
  - A framework for future digital reporting
  - April 2017

- **Business model reporting**
  - Lab project report
  - October 2016

Information about the Lab can be found at: https://www.frc.org.uk/Lab

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