

Defining and Adopting an End User Computing Policy A Case Study

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ABSTRACT

End User Computing carries significant risks if not well controlled. This paper is a case study of the introduction of an updated End User Computing policy at the Wesleyan Assurance Society. The paper outlines the plan and identifies various challenges. The paper explains how these challenges were overcome.

We wrote an End User Computing Risk Assessment Application which calculates a risk rating band based on the Complexity, Materiality and Control (or lack of it) pertaining to any given application and the basis of assessment is given in this paper.

The policy uses a risk based approach for assessing and mitigating against the highest risks first and obtaining the quickest benefit.

1 INTRODUCTION

The paper gives the background and the case history of the introduction of an End User Computing policy at the Wesleyan Assurance Society.

The Wesleyan Assurance Society is a financial service mutual founded in 1841 that provides specialist advice and solutions to doctors, dentists, teachers and lawyers. Wesleyan aims to build life-long relations with its customers, providing them with products and services at every stage of their life from graduation to retirement and beyond.

The Wesleyan group of companies employs approximately 1,500 staff divided between the Head Office in Birmingham, Oswestry, New Malden and Northwich as well as sales staff located throughout the UK.

There are £7 bn assets under management and the Society is successful in passing on good performance to its policyholders through its financial strength and long-term investment policy.

After the Action plan there are the two main sections. These detail the challenges and how they are overcome, then an End User Computing Risk Assessment Application specially written as part of the policy is described in section 6.

2 BACKGROUND

Before the 1980's all serious computing was done under the control of the organisation's IT department where it was best practice for strict controls to be in place for the design, development and maintenance of all the organisation's systems and programs.

Any new systems or changes to systems which were required by the business would frequently be done according to a lengthy development life cycle. Sometimes the requirements would change while the system was being developed so that the new system was not what the customer wanted. Business units doing their own thing was not an option.

Microsoft Excel first became available in 1985 (Wikipedia, 2018) and its gradually increasing functionality and use provided opportunity for computing independently of the organisation's IT department to take place. End User Computing was born along with its associated risks.

3 CASE HISTORY AT THE WESLEYAN – ASSOCIATED CHALLENGES

The Wesleyan Assurance Society updated its End User Computing policy in 2012 because of Solvency II. Subsequently the Data Governance department reviewed the effectiveness of the policy and determined that changes were required to enhance its use.

The Society had not experienced any particular problems with its spreadsheet and end user applications but was keen to ensure it enhanced its policy to keep pace with best practice and minimise the risk of issues arising in the future.

The business need which brought about the update of the policy was the potential risk of an application causing a substantial loss event. We considered this to be sufficient to warrant at least an investigation into how best to mitigate this risk.

The objective is to establish a clear plan of action, try it using at least one pilot and, once proven, roll it out throughout the Society. Two pilot runs have been successful and the Society has approved a phased roll-out on risk based approach.

The main challenges which were faced were:

- a. What to cover in the Policy (the Scope)
- b. Where the End User Computing risks are
- c. Getting the buy-in to adopt the updated Policy
- d. Storage of data pertaining to the applications subject to the policy
- e. Regular review.

4 PLAN OF ACTION

We considered the proceedings of a Hellenic American Union conference (Mallikourtis & Papanikolaou, 2010) and attended a workshop run by The Corporate IT Forum (CITF, 2016). Resulting from this background we decided that the following steps should be taken:

- a. Produce the first draft of the updated Policy Document which includes a means of assessing applications (spreadsheets) for risk. The scope to cover “any computing which is not supplied by, acquired by or supported by any of the Wesleyan’s formal IT departments”. As to the applications, nearly all of the end user computing applications are spreadsheets. The scope is not complete, however, without including local databases (usually Access), Business Intelligence reports (e.g. SQL, Crystal, Power BI), Mobile apps and some third party apps.
- b. Find stakeholders who are willing to co-operate in running at least one pilot.
- c. Run the pilot(s) which involves collecting data about each submitted end user computing application, assessing it for risk and storing the details in a repository where it could be accessed when the need arises.
- d. Conduct “show and tell” sessions to demonstrate which applications already have satisfactory controls and which might be deemed to fall short.
- e. Agree an action plan to fix any errant applications.
- f. Apply governance which will then become part of the End User Computing policy.

Several challenges and how they were overcome are provided here.

5 CHALLENGES FACING EUC ROLL-OUT & OVERCOMING THESE

5.1 Defining the Risk Metrics to assess the applications with

The Complexity and the Materiality of an application are the two main contributors to risk. The more complex a spreadsheet (or for that matter any application) is, the greater the risk is of the risk crystallising and creating an issue. Once the risk crystallises, how material is the effect on the Society’s business operation?

Complexity

We used one of the simpler ways to measure Complexity and this is suggested by PwC (PwC, 2004). A spreadsheet with low complexity is just for information logging and tracking. There are no formulae or links. Medium complexity is where simple formulae are used, for example to translate or reformat information. High complexity is the rest, where complex formulae are used, there are links to external sources, macros and modelling.

The more complex an application is the less likely someone other than the author can understand it and the greater is the spreadsheet risk.

Materiality

Materiality could be measured as the impact resulting from the risk crystallising. This could be

- a. Inconvenient
- b. Poor Customer Outcomes
- c. Reputational
- d. Loss of Business
- e. Financial
- f. Statutory / Legislative

Different areas of the business rank these in different orders so we used a different approach instead.

Independent research done by Chartis suggests the following classification for materiality (Chartis, 2016):

- a. High – Application supports financial or regulatory reporting or private or confidential information.
- b. Medium – Application supports management reporting, calculation or input into a core management information system, or used for making key business decisions.
- c. Low – internal operations or day to day decisions, or contains outputs from core management information systems.

Control

Following the Complexity and Materiality metrics in this way leads us to the front face of the cube provided that the application is well controlled.

The four colours on the cube indicate the risk rating band, and this identifies what remedial action, if any, is needed ranging from blue (none) to red (urgent action needed). Wesleyan uses the Magique system to record the risks and track them through to a resolution. (Magique, 2018).

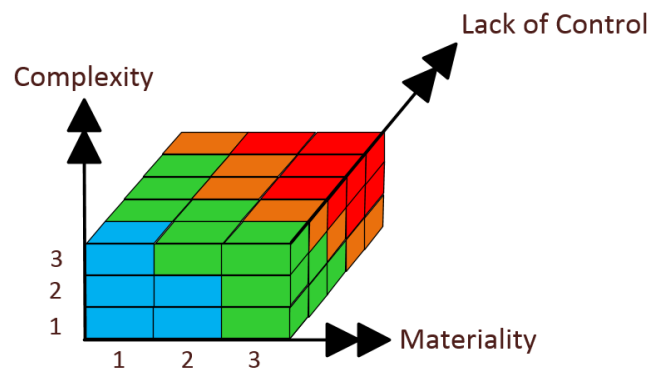


Figure 1- Complexity, Materiality & Control Metrics

Control, when considered, defines how far back we go in the cube.

We wrote a Risk Assessment Application for the End User Computing policy. The SMEs or other experts in the user department are provided with the application (which itself is a spreadsheet) then they use the application to assess the risk. Complexity and Materiality of an application are collected by the SMEs' self assessment because they have hands-on knowledge of the applications and their context within the business.

By a series of yes / no questions the risk assessment application then gathers information about:

- a. How accessible the application is, whether its location is known and whether there are operating instructions
- b. Business Continuity, Back-up and Recovery
- c. Version controlling, whether it needs reviewing and evidence of having been tested
- d. Security, Privacy and Integrity, in other words unauthorised access to the system
- e. The ability to fix the application if it breaks, including the existence of a second person able to fix and the existence of technical documentation
- f. Finally, whether the system contains personal or sensitive personal information (in the context of GDPR, the General Data Protection Regulation, (IT Governance, 2018)).

The answers to the questions are recorded in the Risk Assessment Application and the application calculates the risk rating band. The user then sends the result back to Data Governance who records the results and ensures that there is an action plan to fix the application if it falls short within the assessment.

5.2 Whether to use a Top Down or Bottom up approach

As regards knowing what to assess for risk, two approaches are available, one being top down and the other being the bottom up. The bottom up approach means scanning the whole of the file store for spreadsheets, databases and such like for likely candidates and then finding owners. Even though there are tools which can scan for spreadsheets (Microsoft (2013), Finsbury (2014)) this is a formidable task if one considers that there could be several million files, only a few of these in current use and a few again requiring assessment.

The other way is to use the top down approach where managers and subject matter experts know where their applications are and can use the Risk Assessment Application to assess their applications and return the results. This is what we believe to be a more practical method.

5.3 Where and how to store the assessment results of EUC applications

Wesleyan's Group Reference Architecture provides for the use of Orbus' iServer as a repository for all the assets, whether an IT system or part of End User Computing. (Orbus, 2018).

Each application, (spreadsheet, other EUC application or IT supported system) can be stored in a way whereby its relationships with others can be visualised, for example in terms of the processes the application is used by, which department runs the process and which technology or platform the application runs on.

Its use within End User Computing is to be able to report on applications which require remedial action and to trigger action when an application needs to be reviewed. The policy states that each application should be reviewed annually.

5.4 Assimilation of the End User Computing policy

The full version of the policy document came to more than 80 pages and reading this is a big ask. We considered that effective communication of the policy is important so we split the document into smaller, more manageable amounts and put these on the intranet to draw the reader's attention to what action is needed based on their role, being one of the following:

- a. Executives
- b. Senior Managers
- c. Managers
- d. Subject Matter Experts (SMEs)
- e. Data Stewards

For example, if the reader is a manager the manager is led to this screen:

END USER COMPUTING ACTION REQUIRED OF MANAGERS

Action Required	Resource
Adhere to the End User Computing policy and the Data Governance Policy, Cascade to your direct reports.	EUC Policy Data Governance Strategy
Understand the Risks and Controls (Magique) for End User Computing	Risks Controls
Understand the impact of end user computing on data quality.	Data Governance Strategy
Responsible for Data Quality including fitness for purpose of End User Computing applications, and making these known to Data Governance. Responsible for improving the control.	Taking Remedial Action
Provide assurance to your Senior Manager / Executive through an assessment of 'data' risk expressed within your Operational Risk and Control Assessments (ORCAs); or, where assurance cannot be given provide an action plan to strengthen controls/contain and fix known issues.	
Identify all end user computing applications so that the inventory of all End User Computing applications kept by the Senior Manager is kept up to date. Review each application periodically as required by the next review date.	EUCA Inventory
Ensure that each end user computing application is assessed to determine its risk rating and that testing has been done. Communicate the results to Data Governance.	Risk Assessment App. Operating Instructions Risk Metrics
Assist in creating and implementing an action plan to fix errant applications as indicated by the assessment tool.	Action Plan
The Complexity and Materiality of each EUC application are each graded 1 to 3 and if the sum of these is 5 or more then the Development Life Cycle must be understood and followed as appropriate.	Development Life Cycle
Establish a control framework which ensures the above actions are met.	

Table 1 Sample Intranet page - EUC action required of managers

Instructions are on the left and the hyperlinks on the right reference the appropriate part of the policy. The hyperlink for “Risk Assessment App” launches the application in Excel and they save it so that the users can use this risk assessment application to assess their applications.

5.5 How to engage the Stakeholders

It was known that complex spreadsheets can contain many errors (Bregar, 2004) and the challenge was to maintain the buy-in from the stakeholders so as to mitigate against potential spreadsheet risk.

We decided to run pilots with two willing departments, chosen for the likelihood of having material or complex applications. Both of these were in the Finance area, one being Middle Office and the other Financial Accounting so we had to approach the department heads for their cooperation.

It certainly helped to have a well-prepared presentation identifying the risks and benefits surrounding End User Computing applications.

To facilitate buy-in we made and used a “horror slide” to highlight the risks in which some firms have lost billions of dollars, because of a mistake in a spreadsheet. Ample evidence is found on the (EuSpRIG, 2018) page.

We pointed out that writing a spreadsheet can be a quick and easy solution but the costs in the event of a risk crystallising can be substantial.

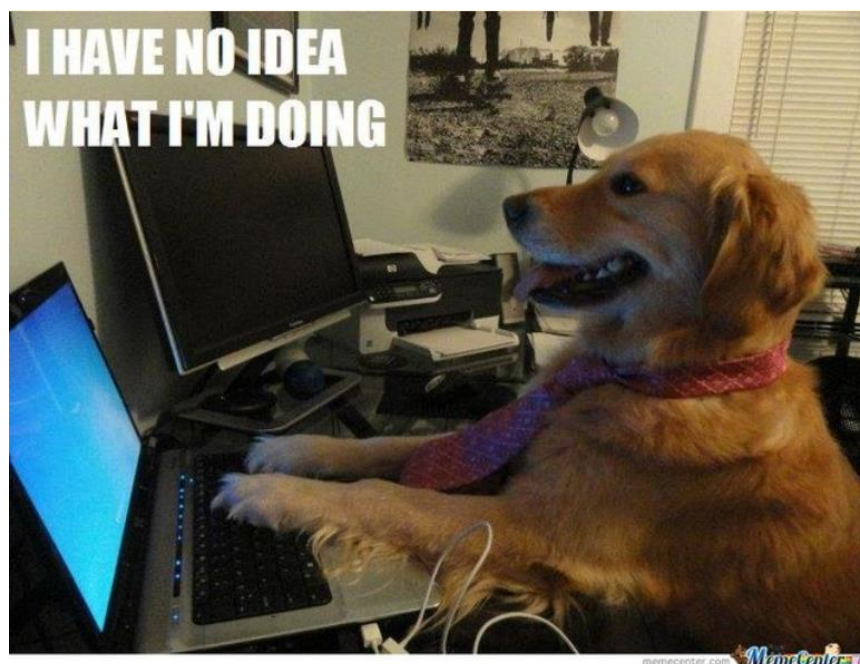


Figure 2- Engaging willing but unknowledgeable users

Think of a situation where only one person knows how to run an application, and that person is not there when the result is needed. The temptation is to get anybody to do the job, not knowing what to do or how to do it. We made the point by using this picture from the (Financial Times, 2013) showing this willing but unknowledgeable user.

Both pilots ran for five weeks during which the departments had each submitted 20 applications. We gave them the Risk Assessment application (see section 6 for the screen shots) and we collected the details of all the applications submitted (they were all spreadsheets). The collection for each application took around 10 minutes.

5.6 Assessment Results Returned to Data Governance

Each application returned had a risk rating calculated from details provided by the SMEs and the opportunity was available to challenge some detail if thought needed. For the complexity metric these tools are available:

Excel Inquire (Microsoft, 2016) is the easiest mentioned here and can report on links between spreadsheets and worksheets, and identify errors, hidden sheets and such like.

Finsbury EUCE (Finsbury, 2014) can perform the above and provide a complexity rating, as can the Discovery and Risk Assessment Server (Microsoft, 2013).

A sample of the spreadsheets were checked for the complexity rating provided in the pilots and the ratings agreed.

5.7 The Show and Tell sessions

Even the users' own assessment of the applications in the pilots gave a surprising proportion of applications with a red rating meaning that urgent action is needed to fix to mitigate potential risk. We looked at the reason why a poor rating was being produced and if there were any quick wins to remediate. The applications concerned all had either the materiality or complexity set to 3 with the other parameter at least 2. In these applications, the main concern was expressed in the security section where the functions or data in the spreadsheets could be open to accidental alteration or corruption (although we found no evidence this has actually occurred), and in some cases there was lack of version control.

Fixing these was seen as a quick win because spreadsheets could be baselined and copies made read only and before the next use a comparison could be made with the baseline. Comparison against a baseline can be done using Excel Inquire (Microsoft, 2016).

After the quick wins several red applications became amber and the most frequent reason for them remaining amber was the lack of evidence for testing and sometimes the lack of technical documentation (as opposed to any ongoing concerns).

This is more of an ongoing issue, however, Finance asserted that the results of these applications are subject to audit and there are many professionals who are equipped to challenge the results should any be considered to be suspicious.

The outcome is that the Risk Assessment Application highlights areas where attention to the control of an application ought to be focussed and it is up to the user department as to what action to take. They are responsible for a truthful entry of data into the Risk Assessment application and are accountable for whatever risks there are in the end user computing applications.

5.8 Finding where the EUC risks are

This is part of the roll-out plan. We gave a short presentation to a meeting consisting of executives and managers about what End User Computing is, its associated risks and benefits of control. We had prepared a spreadsheet-based questionnaire in which the managers make their own assessment of the control which exists over their most complex and material applications. The managers were asked to return these to Data Governance and we will roll the policy out first to the areas of highest perceived risk during the coming months.

The Human Resources and Field Support departments continue to show their willingness to take part in this activity.

6 THE END USER COMPUTING RISK ASSESSMENT APPLICATION

The two main screens are given here.

The screenshot shows the 'General Details' tab of the 'End User Computing Application Assessment' application. The form is structured as follows:

Row	Field Label	Value / Content
2	People	
3	Group / Division	Wesleyan Group
4	Department	Operational Excellence
5	Team	Data Governance
6	If bought, name of the vendor	
7	If we wrote it, Author's name / Department	A. Developer / Development Dept
8	Manager's Name	Mr Development Manager
9	Name of the SME	Dr Expert
10	Who is the Data Steward?	Mr Data-Collector-of-Issues
11	Who is the Data Owner?	Mr Owner
12	Tester's Name	Mr Tester
13	Who else can look after the application?	
14		
15	The Application itself	
16	Name of the application	End User Computing Risk Assessment
17	Description of the application	This application gathers information about each End User Computing application for Data Governance purposes, calculates the Risk Rating based on the application's complexity, materiality and control, then saves 1.6
18	Application Version	1.6
19	Date of last release	15/12/2017
20	Date when the app. was last changed or reviewed	15/12/2017
21	Which process(es) is this application part of?	none
22	Application type	Excel 2016
23	File location of the application	\\Server\UNC Path\Risk Metrics\Risk Assessment - External V 1.6.xlsm
24	Life Cycle status	Live
25		
26	Reporting: Used for Decision making or profiling?	N
27	Key Data items Used or Calculated	Risk Rating, Risk Rating Band
28		
29		
30		
31		

Figure 3- Risk Assessment Application screen - General Details

The top part of the screen is all about the people who interact with the application. We in Data Governance use these people as a point of contact.

The next section is about the application itself, giving its name, description, version and version history, where it is and which platform it runs on. This provides us with more depth to the information we hold about the application. All of these details are recorded in iServer.

We learned from one of the pilots that users like to partly complete a batch of applications and go back to them later to finish off. We needed to provide a “Restore Previous Input” button which allows the user to call back information about any previously entered application for completion.

Clicking on “Next” navigates us to the next screen.

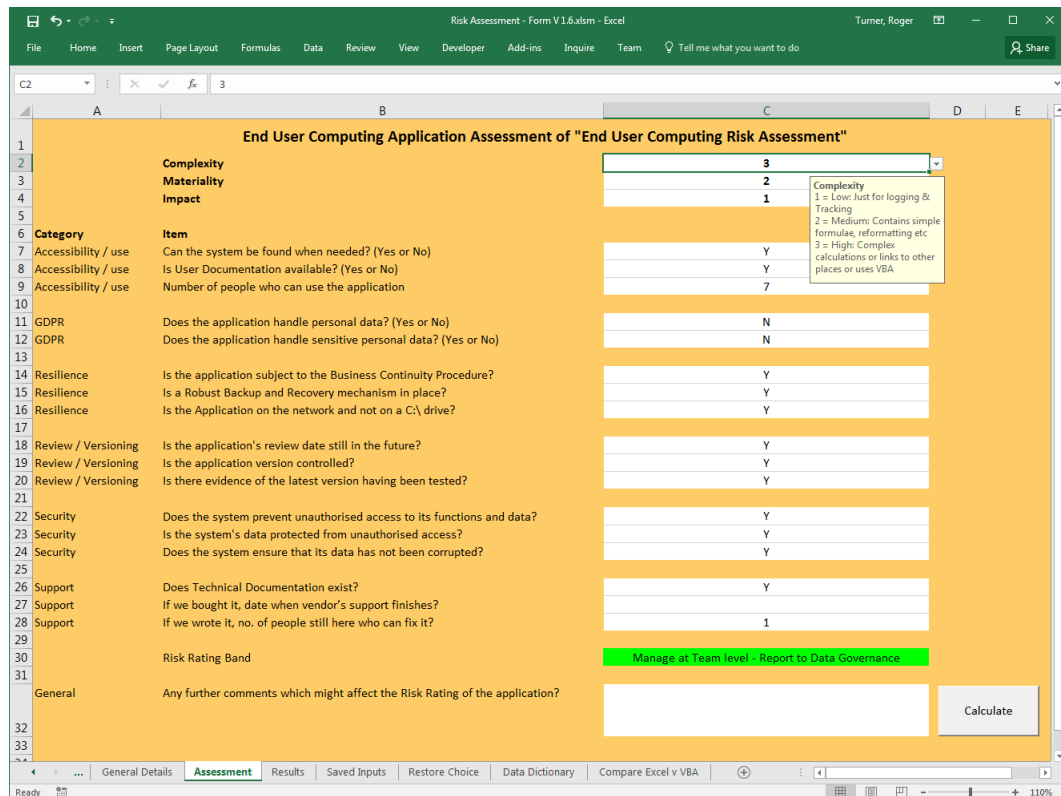


Figure 4- Risk Assessment Application screen - Assessment

The second screen gathers information about the control of the application. The SME or other expert in the User Department enters the Complexity and Materiality ratings first and then answers mostly “yes” or “no” to the other questions, divided into the categories as described above.

The last (General) box is to include any free-form information about the application which might be useful, for example “We are currently training a second person who can fix this application if it breaks”.

At the end of entering all the data, the user clicks on the “Calculate” button and the Risk Assessment application calculates the risk rating band according to the details entered.

The green box near the bottom is then populated with the next action required, according to whether the rating is blue, green, amber or red. It is coloured appropriately. The possible outcomes are:

- a. Blue – No action needed.
- b. Green – An awareness of this application is needed. This is the minimum rating band for applications which hold customer data (GDPR) and applications which are Green and above are reported to Data Governance and are subject to annual review.
- c. Amber – Falls short of acceptable control and an action plan is needed to fix. An entry is made in the Magique system. We would expect the plan to be implemented within three months.
- d. Red – As Amber but urgent action is needed to fix – within a month or before the application is next run if later.

The last box is for free-format information about the risk which might assist in mitigation.

The Risk Assessment application calculates the next review date as being a year from the previous review and the applications which carry the most significant degree of risk are known.

We updated the End User Computing policy having run the pilots.

Already some areas see the policy favourably. In rolling the policy out a risk based approach will be used so that those areas where there is a greater risk will be worked with first.

7 CONCLUSION

Wesleyan started with an End User Computing policy which required updating. After we had written a new policy and the End User Computing Risk Assessment Application we successfully ran pilots in two areas of Finance. The assessment results from these pilots enabled some quick wins to be done and from the learning points gained we were able to improve the policy and the Risk Assessment Application.

The evidence thus provided enabled senior management at the Wesleyan to approve the policy and we are using a risk based approach to roll it out across the Society.

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