WHY YOUR BIA METHOD MATTERS

By Stephen Massey

ABSTRACT: Organizations wishing to implement robust business continuity programmes have a requirement to conduct business impact analysis (BIA). But which method is the most efficacious and what are the factors affecting efficacy?

In this paper, the author describes why BIA is so important in the establishment of an effective BCMS and which methods yield the most efficacies; how organizations must avoid confusing efficiency for efficacy and; why the BIA process must be treated as a learning and development exercise.

Introduction

Organizations wishing to implement robust business continuity programmes have a requirement to conduct business impact analysis (BIA). Given the complexity of the BIA process and, the limited resources available to collect data, there is a requirement to identify efficacious collection methods to support business units and business continuity practitioners in completing the task so that effective risk assessment and business continuity planning can take place. However, which method is the most efficacious and what are the factors affecting efficacy? This paper attempts to answer this and the following questions using the scientific method:

- What are the methods commonly used to collect BIA data?
- What does efficacy look like?
- What is the most efficacious method of collecting accurate BIA data?
- Is integration with business continuity training and awareness initiatives viable?

Before diving into the main research that this paper describes, it is useful to discuss the current collective wisdom in the area of BIA, as well as issues surrounding how people learn and understand in an organizational context.

Business impact analysis

According to Hiles (2002), business impact analysis is defined as "*the identification of the effect on the organisation of the risks to it, should they occur.*" Watters (2010) offers a more detailed definition: "*(BIA) is the process that is followed to establish what is critical to the business survival and translate this into a set of recovery priorities or requirements.*" Virginia (2011) defines BIA as an exercise that "*looks at critical processes and considers the operational, financial, and other impacts and exposures for each part of the organization if a serious disruption to those processes occurs.*"

Of the definitions described above it is in the author's opinion that Watters's definition is the most complete. Hiles describes only the information gathering part of the process and this may lead a practitioner to see the exercise as completed on documentation of relevant information. Virginia's definition is inaccurate: the BIA will identify what is critical once the whole organization has been assessed but it would dangerous to make an assumption of what is critical prior to the BIA. Only Watters's definition offers the practitioner a purpose to the exercise and a usable product: 'a set of recovery priorities or requirements'.

Herman & Oliver (2002) suggest that a business continuity plan should start with BIA and highlight examples supporting the logic. Hiles (2008) offers support, arguing that the BIA is "*the most fundamental and important product of the business continuity lifecycle."* Conversely the DRII (2012) advocate a risk assessment stage before the BIA. The DRII approach to BIA is flawed as it requires the practitioner to first identify potential risks before identifying what is important to the organization which may create a process where risks are identified that have no relevance and thus waste finite resources. Research conducted by Johnson & Tversky (1983) supports the author's preference of order but suggest there is some groundwork that needs completing prior to initiating the BIA phase to increase levels of engagement in the process. It is the author's opinion, supported by the International Standards Organisation (2012) that BIA should be conducted first to identify what is important to the organization and then followed by a risk assessment focussing on *relevant* risks to those assets that are most valuable.

Hübert (2012) believes that the BIA simply does not work, citing four reasons. The author disagrees with most of his reasoning as it appears to be based on personal anecdotes that are more a criticism of the way an organization approaches the BIA process as opposed to flaws in any particular BIA methodology. Hübert states that the BIA is process-driven and because, in his opinion, organizations are not process driven, the BIA cannot work. BS 25999 and ISO 22301 do not reference process in any part of their description of BIA, instead describing BIA as assessing the impact of disruption on 'activities'. Hübert also raises concerns about organizations limiting the scope of the BIA. The author does agree with Hübert's argument on this point but it may no longer be a valid concern as in ISO 22301 the word 'critical' has been removed: so a BIA must look holistically at the organization's activities.

Watters (2010) "*strongly recommends doing the BIA as a facilitated session, where you ask questions and record the responses.*" Watters also suggests an alternative which is to "*handover responsibility to the people in the business.*" In contrast, the Business Continuity Institute (2010) implies that BIA is a skill required of the business continuity practitioner and not of someone within the business. This may send out the wrong message to business units that business continuity is something someone else does on its (the business unit's) behalf as opposed to presenting a more appropriate view that the business is responsible for assessing the impact of disruption on its own activities: albeit with support.

A key consideration when conducting BIA is to ensure the data collected is appropriate to the desired outputs. Watters (2010) states that the practitioner must first '*establish what is critical*'. To do this, data must be collected about the component parts of the organization in a systematic way. Ideally, this information would be stored in enterprise databases maintained through well-controlled automated processes requiring little human intervention. In practice, however, not all data is stored in machine searchable form and data which has been compiled has often not been maintained. Haug & Arlbjørn (2011) describe a number of reasons why this can occur in organizations. Ultimately, a business continuity practitioner must identify and effectively use a method of collecting data that will accurately identify an organization's recovery priorities.

There are a number of BIA collection methods available to the business continuity practitioner, the four main methods are:

- A pre-formatted spreadsheet usually emailed to the recipient;
- An online survey tool such as SharePoint or built into a BCM software solution;
- A facilitated meeting; and
- A training workshop.

Al-Omiri (2007) extols the virtues of email and Internet/Intranet based information gathering exercises and McDonald & Stewart (2003) conclude that "*online data collection does offer some advantages over postal collection from an efficiency viewpoint.*" In both cases the studies replace postal collection for email, narrowing the differences in efficiency: but there are still efficacy challenges. Al-Omiri (2007) states that the above methods can be limited when the data sought by the practitioner is unfamiliar to the respondent. Makarem, et al., (2009) also observed "*even for the tech-savvy, human contact is an important factor in both customer satisfaction and behavioural response.*"

Organizational Learning

One of the main aims of the research described in this paper was to identify if data collection can be integrated into business continuity training and awareness initiatives. The three main business continuity standards all recommend that training and awareness activities form part of an effective business continuity management system (BCMS). When the language used in each standard is interpreted further, all imply that *training* is required for business continuity practitioners and *awareness* is required for [general] employees. What none of the standards discuss is the somewhat grey area between [general] employees and practitioners and, those employees that will contribute data leading to the creation and ultimate success of the BCMS. If these members of staff are not provided with the right level of education to support data gathering efforts, it is highly likely that data will be either inaccurate or incomplete: and this will ultimately have an effect on its usefulness in decision support.

Paton & Jackson (2002) propose that "*Fundamental to disaster readiness planning is developing training strategies to compensate for the limited opportunities available for acquiring actual disaster response experience.*" Trebilcock (2010) agrees, stating: "*It is clear that education, training and awareness are key elements to achieving an effective and sustainable BCM culture.*" Training and awareness activities are extremely important to ensuring those tasked with the compilation of BIA data understand what they are compiling this data for but, more importantly, *why* they are compiling [the data].

Developing the above idea, it is useful to discuss how BIA learning objectives sit in Bloom's (1956) taxonomy of learning.

The educational process would first ensure that the participants had business continuity *knowledge (1)*, focussing solely on BIA an understanding of terminology and the reasons why data is collected. Participants must *comprehend (2)* how business continuity impacts their particular part of the organization so they are able to *apply* (3) the knowledge in the completion of a BIA template [whatever that method may be]. At this stage, the practitioner would take over to carry out the *analysis (4)*. Once the BIA is complete the next challenge is for the business to *synthesise* (5) the knowledge they have gained through the BIA process, combined with data from the risk assessment process, into a workable plan before testing the plan and refining it accordingly through *evaluation* (6).

Looking at the BIA process in this way causes the model to break down as the cognitive aspects and knowledge aspects become confused. This flaw in the methodology was identified by Krathwohl (2002), who put forward a revised taxonomy which turns Bloom's hierarchical model into a matrix model. The author assesses the steps would likely fit as follows:

The Knowledge Dimension	Remember	Understand	Apply	Analyse	Evaluate	Create
Factual					(6)	
Conceptual		(1)	(2)			
Procedural			(2)	(4)		(5)
Metacognitive			(3)	(4)		(5)

Figure one: The placement in Krathwohl (2002) Taxonomy Table of BIA data collection objectives.

Figure one shows that steps (1)-(3) require the participant compiling the data to have a conceptual and procedural understanding of BIA and to be able to apply metacognitive knowledge of their business effectively if the process is to be successful. What this implies is that remote collection methods such as emailed spreadsheets and online surveys will, without adequate training, inevitably yield less efficacious results than methods where an appropriate level of education has been provided. The same would be the case if specialised business continuity software was used to support the data collection process. In short, the business continuity practitioner must ensure that participants understand not only how to provide BIA data but why it is being collected.

Main research

Having looked at key aspects of the literature relating to business impact analysis, this paper will now describe an experiment which was conducted to compare the efficacy of different BIA data collection methods.

Strategy

Weiss (1994) posits that the method used to conduct research is determinate upon the aims of the said research, therefore the following primary research methods were used: Experimental as described by Montgomery (2009) and Survey as described by Fowler (2003).

Method

Groups of at least 20 identified at random from within the participating organization were asked to provide BIA data using one of the methods described below:

- Ask users to fill in a pre-prepared spreadsheet;
- Ask users to fill in an online survey with error correction controls built in;

- Conduct a facilitated meeting;
- Conduct a classroom based session (maximum of 10 attendees).

Additionally two surveys were conducted (known as S1 and S2):

S1. A survey to poll those completing the data collection tasks to ascertain ease of completion and level of understanding. The population of the S1 were the staff of a global organization with an overall headcount greater than 35,000 based in the Europe, Middle East & Africa region.

S2. A survey polling in-house business continuity practitioners across multiple industries and size of business to identify the methods they use to collect BIA data and the reasons why they have chosen to employ them. The population of S2 were from closed LinkedIn business continuity groups.

Findings from the experiment

The experiment compares the percentage completion rates, as a marker for efficacy, of BIA data collection methods. When considering all methods as described in figure two, the percentage score across all methods was less than optimal with results widely dispersed (M = 70%, SD = 32%).

However when the data is split to show the different methods used it is clear some methods are better than others:

Collection Method	n	Sum	Mean	Variance	Std Dev	Low	High
Spreadsheet	30	1751	58.37	1028.72	32.07	26.29	90.44
Online Survey	30	1556	51.87	1100.12	33.17	18.70	85.03
Facilitated meeting	17	1545	90.88	78.86	8.88	82.00	99.76
Workshop	22	2029	92.23	104.18	10.21	82.02	100*
All Methods	**99**	**6881**	**69.51**	**993.56**	**31.52**	**37.98**	**100***

Figure two: Summary of results – experiment.

* Calculated value is 102.43 & 101.03 respectively however; results cannot go higher than 100% complete.

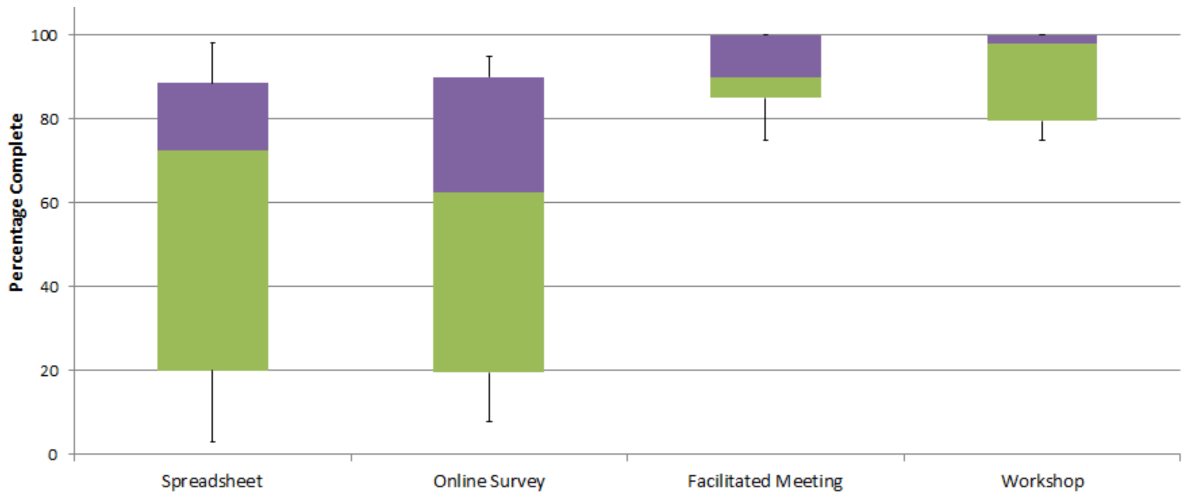

Figure three: Box plot depicting experiment results.

The results *prima facie* imply there are differences between the percentage completion rates and the data collection method used. However, it does not confirm if there is any statistically significant difference. A one-way between subjects analysis of variance (ANOVA) was conducted to compare the effect of data collection method on percentage completion rates for spreadsheet, online survey, facilitated meeting and workshop conditions.

The hypotheses to be tested are below:

$$H_0: \mu_{\text{Spreadsheet}} = \mu_{\text{Online Survey}} = \mu_{\text{Facilitated Meeting}} = \mu_{\text{Workshop}} = 0$$

$$H_1: \mu_i \neq 0 \text{ for at least one } \mu_i$$

$$\alpha = 0.05$$

$$\text{If } p < 0.05 \text{ reject } H_0$$

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	32182.69	3	10727.56	15.63	$2.42679\text{x}10^{-8}$	2.70
Within Groups	65186.06	95	686.17			
			20.08			
Total	97368.75	98				

Figure four: Analysis of variance of percentage completion rates.

There is a statistically significant effect (figure four) from method on percentage completion rate at the $p<0.05$ level for the four conditions; $F(3, 95) = 15.63$, $p = 2.43\text{x}10^{-8}$. H_0 is therefore rejected. ANOVA is limited to determining statistical significance across a group of samples but it cannot tell you where the effect lies across the different samples. As statistical significance has been proven it is now prudent to use post-hoc testing to identify the specific location of the statistically significant effect. Independent 2-sample t-Tests assuming unequal variance were conducted. The hypotheses to be tested are below:

$$H_0: \mu_{method1} = \mu_{method2}$$

$$H_1: \mu_{method1} \neq \mu_{method2}$$

If $p < 0.05$ reject H_0

		Spreadsheet	Online Survey	Facilitated Meeting	Workshop
Mean		58.37	51.87	90.88	92.23
Variance		1028.72	1100.12	78.86	104.18
Observations		30	30	17	22
P(T<=t) two-tail	**SS**	x	0.44	7.86×10^{-6}	3.82×10^{-6}
	OS		x	5.59×10^{-7}	3.01×10^{-07}
	FM			x	0.66

Figure five: t-Test - 2-sample assuming unequal variances – percentage complete.

Results (figure five) show there is no statistically significant difference in completion rates between spreadsheet (M = 58%, SD = 32%) and online survey methods (M = 52%, SD = 33%) conditions; $t(58) = 0.77$, $p = 0.44$. The results suggest that changing the collection method from a pre-prepared spreadsheet will not yield a statistically significant increase in percentage completion rates. Similarly, there was no significant difference in completion rates between facilitated meeting (M = 91%, SD = 9%) and workshop methods (M = 92%, SD = 10%) conditions; $t(36) = 0.44$, $p = 0.66$. The results suggest changing the collection method from facilitated meeting to workshop will not statistically increase percentage completion rates however changing the collection method from spreadsheet or online survey to facilitated meeting or workshop will statistically increase percentage completion rates.

The results appear to confirm those inferred by Makarem, et al. (2009) and Trickey (1997): that human methods of data collection will yield improved results. As Watters (2010) suggested, facilitated meetings are the most efficacious method, however not statistically significantly different than workshops. The author assesses that the difference is likely to be due to the ratio of practitioner to participants. In the case of the workshops, the ratio was approximately 1:7 whereas in the case of the facilitated meetings, the ratio was never more than 1:3. This means the practitioner may have to field a wider range of questions and support a wider group of participant issues in a workshop as opposed to a facilitated meeting.

Findings from the internal survey

This next section seeks to identify if understanding of the data collection context affects the percentage completion rate. When considering all methods as described in figure six, the level of understanding was less than optimal with results widely dispersed (M = 6, SD = 3). The lowest averages were that of the spreadsheet (M = 5, SD = 3) and online survey method (M = 5, SD = 3).

Groups	n	Sum	Average	Variance	Std Dev	Low	High
Spreadsheet	30	156	5	6.37	3	3	8
Online Survey	30	139	5	10.79	3	1	8
Facilitated meeting	17	151	9	0.99	1	8	10
Workshop	22	173	8	1.55	1	7	9
All	99	619	6	8.50	3	3	9

Figure six: Summary of results – level of understanding.

The highest average was that of the facilitated meeting (M = 9, SD = 1) however whilst the workshop has a slightly lower average (M = 8) the dispersion from the mean is the same (SD = 1). In both the facilitated meeting and the workshop, results were similarly three times closer to the mean than results in the spreadsheet and online survey.

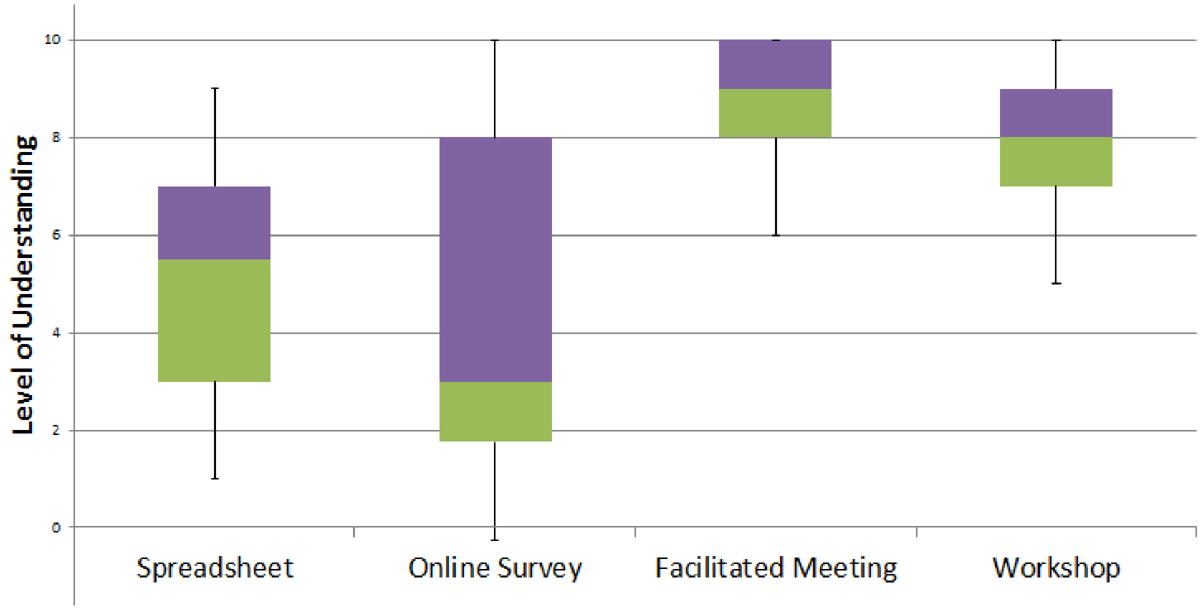

Figure seven: Box plot depicting levels of understanding.

The results appear to imply differences between the data collection method used and the participants' perceived level of understanding. A one-way between subjects ANOVA was conducted to compare the effect of data collection method on perceived levels of understanding for spreadsheet, online survey, facilitated meeting and workshop conditions.

The hypotheses to be tested are below:

$$H_0: \mu_{\text{Spreadsheet}} = \mu_{\text{Online Survey}} = \mu_{\text{Facilitated Meeting}} = \mu_{\text{Workshop}} = 0$$

$$H_1: \mu_i \neq 0 \text{ for at least one } \mu_i$$

$$\alpha = 0.05$$

If $p < 0.05$ reject H_0

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	286.56	3	95.52	16.62	9.32×10^{-09}	2.70
Within Groups	546.12	95	5.75			
Total	832.68	98				

Figure eight: Analysis of variance of levels of understanding.

There is a significant effect (figure eight) from method on perceived levels of understanding at the $p<0.05$ level for the four conditions; $F(3, 95) = 16..62$, $p = 9.32 \times 10^{-9}$. H_0 is therefore rejected – the method used does affect the level of understanding. Independent 2-sample t-Tests assuming unequal variance were conducted. The hypotheses to be tested are below:

$$H_0: \mu_{\text{method1}} = \mu_{\text{method2}}$$

$$H_1: \mu_{\text{method1}} \neq \mu_{\text{method2}}$$

If $p < 0.05$ reject H_0

		Spreadsheet	Online Survey	Facilitated Meeting	Workshop
Mean		5.2	4.63	8.88	7.86
Variance		6.37	10.79	0.99	1.55
Observations		30	30	17	22
P(T<=t) two-tail	SS	x	0.46	1.26×10^{-08}	8.98×10^{-06}
	OS		x	1.05×10^{-07}	1.59×10^{-05}
	FM			x	0.01

Figure nine: t-Test - 2-sample assuming unequal variances – level of understanding.

As summarised in figure nine, results show there was no statistically significant difference in perceived levels of understanding between spreadsheet (M = 5, SD = 3) and online survey methods (M = 5, SD = 3) conditions; $t(54) = 0.75$, $p = 0.44$. There was significant difference in perceived levels of understanding between facilitated meeting (M = 9, SD = 1) and workshop methods (M = 8, SD = 1) conditions; $t(37) = 2.84$, $p = 0.01$. The results suggest changing collection method from workshop to facilitated meeting may statistically increase levels of understanding. The results also suggest that changing the collection method from spreadsheet or online survey to facilitated meeting or workshop will statistically increase levels of understanding and the importance of the human factor as described by Makarem, et al. (2009).

Whilst the experiment confirms a relationship between levels of understanding and percentage completion rate, it does not take into consideration whether the method of collection itself may be a more important efficacy factor. The next section seeks to identify if ease of completion affects the percentage completion rate.

A Pearson product-moment correlation coefficient (PPMC) calculated the strength of correlation between the perceived ease of completion by participants and percentage completion. Correlations were compared in both the spreadsheet method and the online survey as these methods did not have any human interaction. In the spreadsheet method a statistically significant positive correlation exists between ease of completion and percentage completion $r = 0.87$, $n = 30$, $p = 0.05$. In the Online survey method there was a statistically significant positive correlation between ease of completion and percentage completion $r = 0.55$ $n = 30$, $p = 0.05$ The coefficient of determination for online survey (30%) suggests other factors are more likely attributable for the increased percentage completion whereas for spreadsheet (76%) implies ease of completion plays a larger part. The main difference between the two methods is the automated error control and the inferred context provided when suggested options are offered to participants e.g. providing a list of business applications in a drop-down list in the survey tool instead of requiring the participant to populate an empty cell in a spreadsheet. The experiment and survey one results suggest making data collection easier to complete and less prone to input error is an efficacy factor but it is not the most important factor when collecting data where underlying concepts are not fully understood by the participant, Al-Omiri (2007).

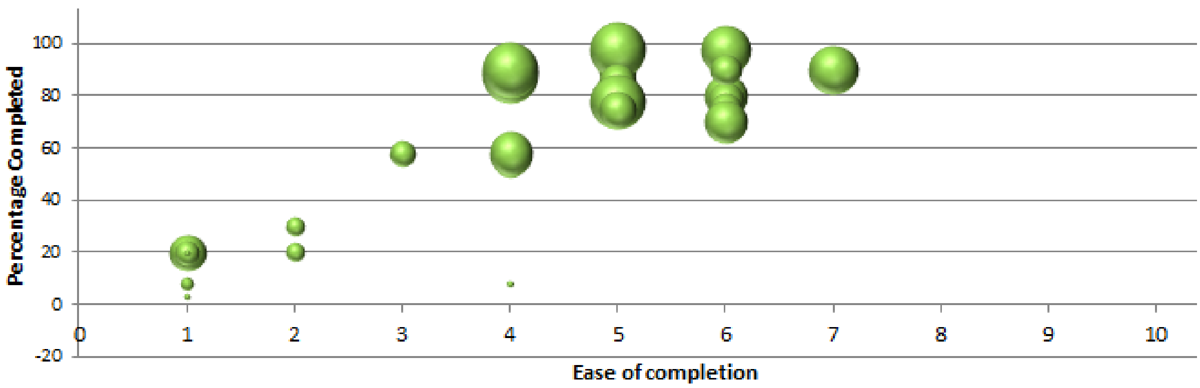

Figure ten: Spreadsheet method: how ease of completion and level of understanding relate to percentage complete.

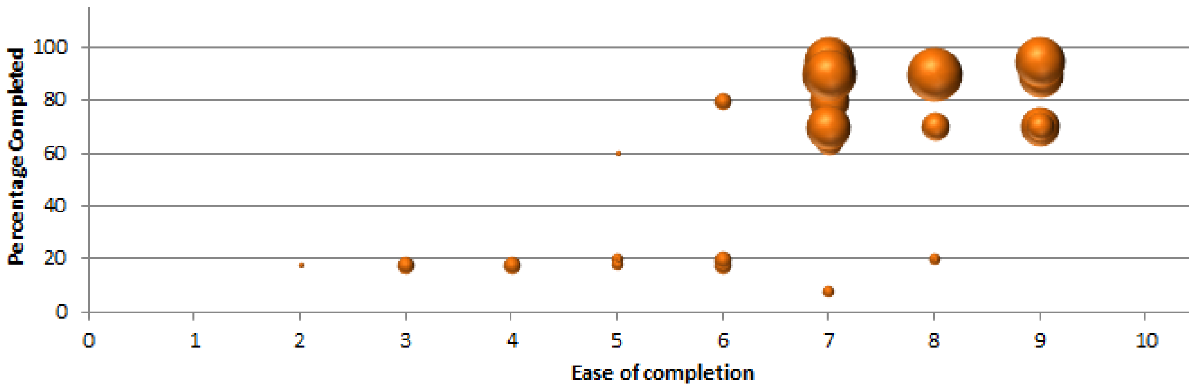

Figure eleven: Online survey method: how ease of completion and level of understanding relate to percentage complete.

To summarise, the results show that the method used to collect BIA data does improve percentage completion rates $F(3, 95) = 15.63$, $p = 2.43 \times 10^{-8}$. The results also show that methods with human interaction yield, on average, higher percentage completion rates than those with no human interaction. Results indicate level of understanding is a more important factor in achieving higher percentage completion rates than ease of completion.

Findings from the external survey

The internal aspects of this research have identified the most efficacious method within one organization but how do the results compare with what is happening in other organizations and, are there any correlations. In total 74 people responded to survey two. Only 49 participants matched the required profile of an 'in-house' business continuity practitioner and so all other respondents were stripped prior to the description stage. Where there was ambiguity in a response the whole response was stripped prior to the description stage.

Frequency of collection

83 percent of respondents reported collecting BIA data at least annually, which corresponds to the guidance in the BCI Good Practice Guidelines 2010 (Business Continuity Institute (2010)). One respondent reported that collection of BIA data is not part of their programme.

Method used

Of the 46 respondents collecting BIA data, 37 percent reported the facilitated meeting as their most used technique with 32 percent opting for the spreadsheet method. Interestingly, only 9 percent reported using the workshop method. Over half (54 percent) use non-human methods to collect BIA data. Considering the internal experiment results, business continuity practitioners in these organizations have adopted a less-than-optimal approach to data collection which will likely yield inaccurate and incomplete data.

Method merits

The top reason stated for choosing the workshop method is the 'ability to challenge assumptions' followed closely by the 'ability to explain the concepts contained in the BIA' (figure twelve). When taken in the context of the learning objectives described in the organizational learning section above, results suggest that respondents have chosen this method identifying the inherent complexity of the BIA process and the realisation that concepts must be explained before they can be accurately applied.

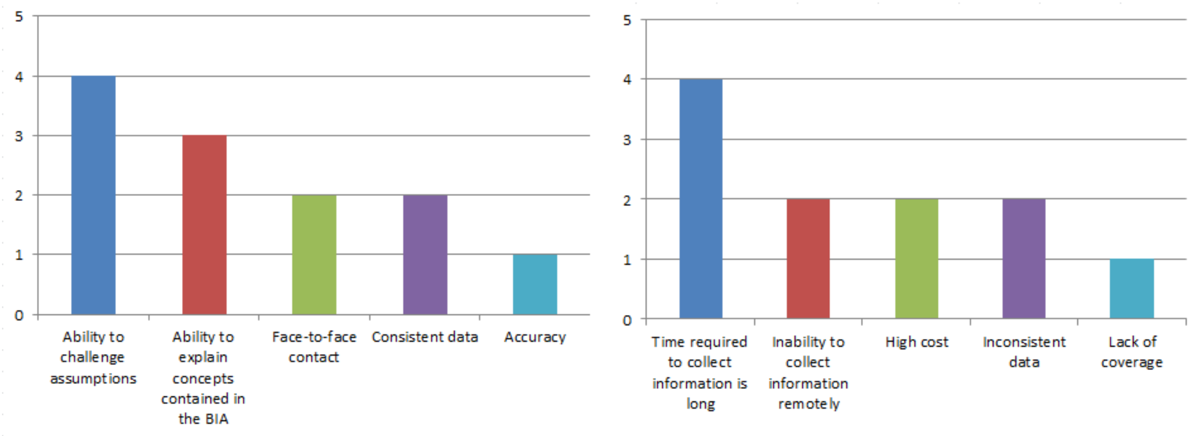

Figure twelve: Workshop method - top five perceived advantages and disadvantages n=12

The main disadvantage stated is 'time required to collect information being too long' however, 'inability to collect the information remotely', 'high cost' and 'inconsistent data' were all rated equally. Inconsistent data is a somewhat surprising disadvantage to the workshop method. The experiment results showed the workshop method provided a consistently higher average (M = 92%, SD = 10%) level of completion and higher level of understanding (M = 9, SD = 1) surpassed only by the facilitated meeting method. The inability to collect data remotely makes sense and high cost also makes sense when travel and accommodation costs are considered. Technology however could provide ways to support a remote workshop model, which would significantly reduce the cost of the workshop method.

When analysing perceived advantages and disadvantages for the facilitated meeting method figure thirteen may give insight into the choice of method. The top reason is 'face-to-face contact' followed closely by 'consistent data' and then 'ability to challenge assumptions', the ability to explain concepts contained in the BIA is only the 4th most popular stated advantage. This would appear to corroborate (Slovic, 1999) and the conclusions made that risk management processes can often be politicised. This is further confirmed by the relatively lower value assignation apportioned to 'high cost' as a disadvantage when facilitated meetings should be more expensive than workshops. The perceived value of direct leadership contact appears to outweigh the likely increased costs.

Participants who use the spreadsheet (figure fourteen) somewhat surprisingly reported 'ability to explain concepts in the BIA' as the most popular reason for choosing the method yet a similar amount of participants reported the 'inability to explain BIA concepts' as a disadvantage.

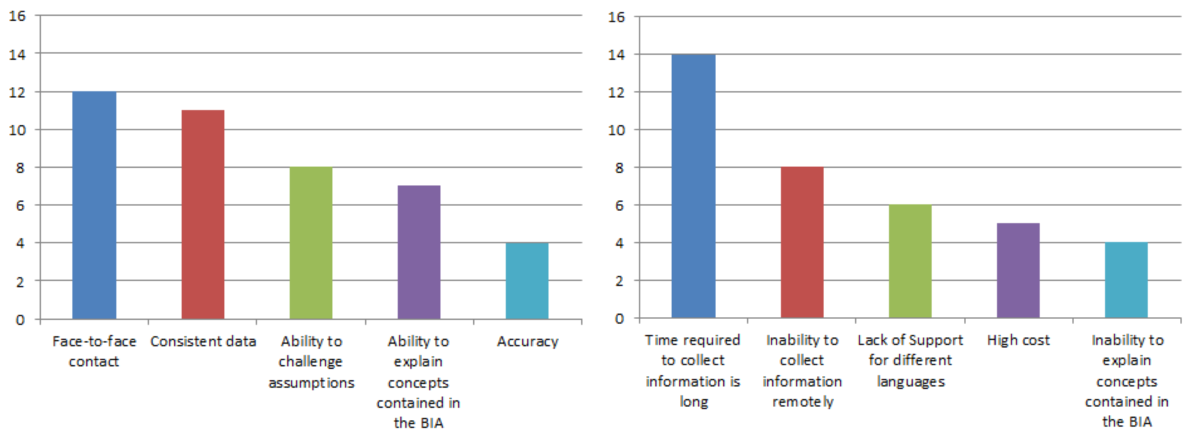

Figure thirteen: Facilitated meeting method - top five perceived advantages and disadvantages n=51.

Similarly face-to-face contact appears in both the advantage and disadvantage list (lack of). The results may suggest some practitioners adopt a 'half-way-house' approach in which human interaction is involved, however this interaction falls short of what the practitioner perceives as a facilitated meeting or a workshop. Due to the anonymous nature of survey two this cannot be clarified.

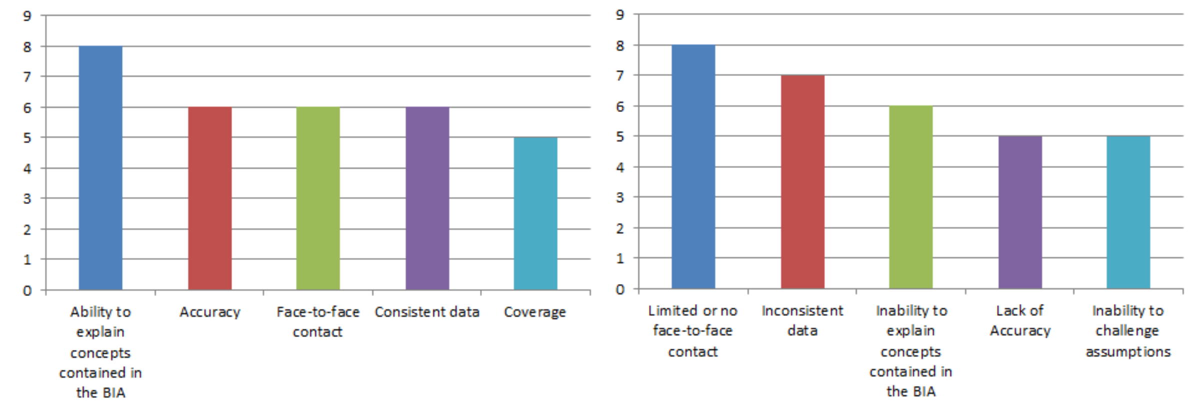

Figure fourteen: Spreadsheet method - top five perceived advantages and disadvantages n=45.

With over half (54 percent) of organizations collecting data using non-human methods, this leads the author to the conclusion that the sample population are knowingly utilising finite resources in an extremely inefficient manner. Given the political undertones suggested in the reported advantages and disadvantages, BIA is not perceived as a valuable activity.

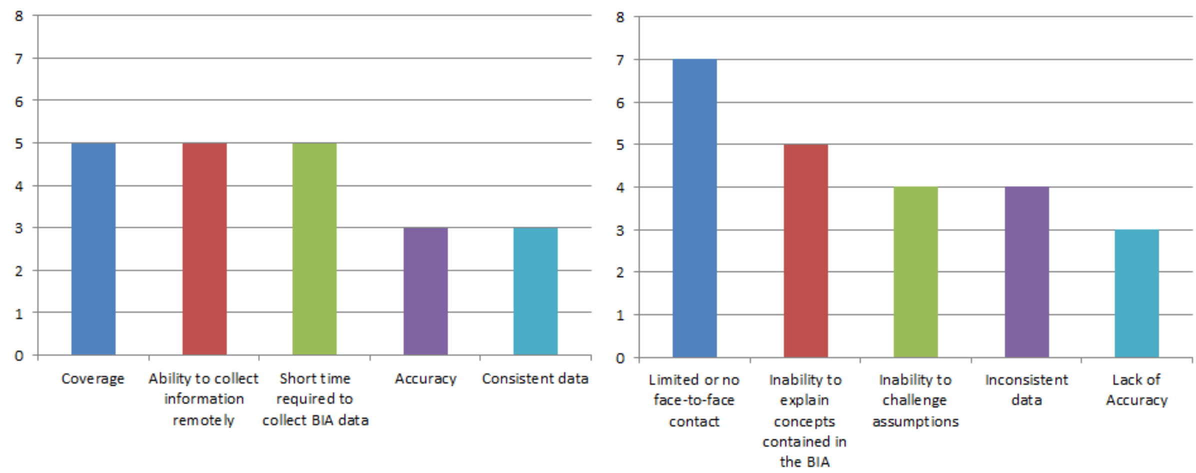

Figure fifteen: Online survey tool method - top five perceived advantages and disadvantages n=30.

Efficacy modelling

So what does efficacy look like? The main conclusion drawn is that efficacy depends on a number of factors but the most important factor appears to be human interaction. Ease of completion is a factor that affects efficacy, however, synthesis of procedural and metacognitive knowledge is more important. Figure sixteen presents a model showing how efficacy changes when comparing one method to another.

		Method B			
		Spreadsheet	**Online Survey**	**Meeting**	**Workshop**
Method A	**Spreadsheet**	x	No Improvement	Significant Increase in efficacy	Significant increase in efficacy
	Online Survey	No Improvement	x	Significant Increase in efficacy	Significant increase in efficacy
	Meeting	Significant decrease in efficacy	Significant decrease in efficacy	x	No improvement
	Workshop	Significant decrease in efficacy	Significant decrease in efficacy	No improvement	x

Figure sixteen: Efficacy change choosing Method B over Method A.

Now, the above model does not tell the whole picture as there is an administrative burden for the practitioner across all methods mainly in terms of time (e.g. chasing up responses or the time taken to facilitate meetings or conduct workshops). Figure seventeen considers this and presents a modified version. In the modified model, automated error correction (present in online survey methods) and the higher ratio of practitioner-to-participant (present in workshop methods) have a force multiplying effect (Defense Technical Information Center, (n.d.)) so whilst not having a statistically significant effect on efficacy, they do have a measurable effect on efficiency.

		Method B			
		Spreadsheet	**Online Survey**	**Meeting**	**Workshop**
Method A	**Spreadsheet**	x	Force Multiplier	Significant Increase in efficacy	Significant increase in efficacy
	Online Survey	Force Divider	x	Significant Increase in efficacy	Significant increase in efficacy
	Meeting	Significant decrease in efficacy	Significant decrease in efficacy	x	Force Multiplier
	Workshop	Significant decrease in efficacy	Significant decrease in efficacy	Force Divider	x

Figure seventeen: Efficacy change (considering resource ratio) choosing Method B over Method A.

Recommendations

So now practitioners have the above insights, how can they be applied? The following recommendations seek to operationalise this knowledge:

Organizations should treat BCM as a learning activity

The most important recommendation derived from the findings of this research is that organizations must treat business continuity as a learning and development exercise. The key competency organizations should look for when hiring practitioners is the ability to train. Governing bodies should ensure the ability to train is a key component of professional certification in the field of business continuity. Development of learning objectives for each aspect of business continuity management (BCM) should be agreed and created to support practitioners.

BCM software providers should include BCM education

Most BCM software solutions provide education on how to use their tool as a matter of course however to the author's knowledge no BCM software solution embeds BCM education in-line with the data input tasks. If BCM software provided tutorials explaining not only how to use the tool but also why that information is needed, the participant may become more engaged in the process and as they understood more about aims of the process, efficacy levels should increase.

Don't confuse efficacy with efficiency

Spreadsheets and online surveys may seem like efficient methods for collecting data at remote sites however their use is a false economy if the returned data is incomplete or inaccurate. Practitioners using this method should review the actual time taken from launch to collection and add up all the hours of follow-ups and clarifications (If that is actually a part of their process) and compare it to the time that would be needed to hold structured workshops.

Training must be provided either before or, alongside, data collection activities

It is not enough to assume your audience understands the BIA process. It is also important not to fall into the trap of thinking that participants do not need to know the process in order to provide the data. Respondents need to be provided with an understanding of the context in which their information will be used so that there is consistency across the respondent population.

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