

**(Footnotes)**

- <sup>1</sup> The word "chunk" was used by Miller to describe an information unit.
- <sup>2</sup> The measure "chunk" was used by Miller to describe an information unit. This represents a perceivable information unit. According to Miller, therefore, information acquisition is carried out in the form of perceivable units
- <sup>3</sup> Schroder, Driver and Streufert conclude that an environment is complex if it provides "excessively diverse and/or numerous dimensional units of information," i.e., information which requires substantial integration of thought can be described as multi-dimensional and therefore complex (Schroder et al., p. 31)
- <sup>4</sup> In the case of financial reporting, information load may be substituted for environmental complexity
- <sup>5</sup> In studies to date, information overload has been conceived primarily as "information load"
- <sup>6</sup> Only 4 out of 64 respondents are not financial managers. In fact, these managers were questioned because they are heavy users of accounting information, and they are confronted by decision tasks similar to those confronted by financial managers. In the context of this study, these four managers will be referred to under the title "financial managers" too.
- <sup>7</sup> See appendix A for the full form of the questionnaire
- <sup>8</sup> The closer the reliability coefficient gets to 1.0 the better. In general, reliability less than 0.60 is considered to be poor, those in the 0.70 range, acceptable, and those over 0.80 good (Sekaran, 2003)
- <sup>9</sup> If the average of the means of responses to questions of sources of accounting information overload is more than 3(the cut-off point), managers' exposure to sources of accounting information overload is considered to be high (strong). On the other hand, if the average of the means of responses to questions is less than or equals to 3, managers' exposure to accounting information overload sources is considered to be low (weak). The choice of any cut-off could be regarded as arbitrary. It may depend on the whether an author wants to be lenient and in our case we could have chosen 2 as cut-off. Accordingly, more respondents would suggest that there is no information over-load. On the other hand a more strict position would have led us to choose 4 as a cut-off point. This of course would reduce the number of respondents who would suggest that there is no information overload. It is fair to choose the mean as a dividing point. Actually it is suggested that it represents a summary measure which is typical of a sample of respondents, especially when we are dealing with variables measured at interval (Sufian,1998).
- <sup>10</sup> Where  $\mu$  is the means of responses to questions of the hypothesis
- <sup>11</sup> The value of t at a significance level of  $\alpha = 0.05$  equals 1.658 ( $t_{\alpha} = 0.05 = 1.658$ ). This value of t will be used as a benchmark when the decision has to be made about the acceptance or rejection of a hypothesis.
- <sup>12</sup> For the two sample test, the null hypothesis which states the equality of the means of the two samples will be rejected if the value of t is greater than 2 or less than -2 ( $t > 2$  or  $t < -2$ )

Table -3: Task Performed by Managers using Partially Computerized AIS

	Tasks Performed	Yes	No	No Response	Total (N)
15	Determine Wage Rates	9 75%	3 25%	0%	12 100%
3	Determine Amount of Sales	7 58%	5 42%	0%	12 100%
16	Performance Appraisal	7 58%	5 42%	0%	12 100%
6	Sell an Asset	6 50%	6 50%	0%	12 100%
10	Inventory Control	6 50%	6 50%	0%	12 100%
14	Asset Valuation	6 50%	6 50%	0%	12 100%
1	Product Planning	5 42%	7 58%	0%	12 100%
17	Evaluating Profit Centers	5 42%	7 58%	0%	12 100%
22	Planning	5 42%	7 58%	0%	12 100%
23	Control	5 42%	7 58%	0%	12 100%
2	Determine Production Quantity	4 33%	8 67%	0%	12 100%
4	Pricing the Product	4 33%	8 67%	0%	12 100%
5	Buy an Asset	4 33%	8 67%	0%	12 100%
9	Purchase Raw Materials	4 33%	8 67%	0%	12 100%
13	Inventory Valuation	4 33%	8 67%	0%	12 100%
18	Make or Buy Decisions	4 33%	8 67%	0%	12 100%
24	Supervision	4 33%	8 67%	0%	12 100%
26	Determine Board of Directors Rewards	4 33%	8 67%	0%	12 100%
27	Determine Dividends Policy	4 33%	8 67%	0%	12 100%
29	Borrowing Decisions	4 33%	8 67%	0%	12 100%
8	Start a new Product Line	3 25%	9 75%	0%	12 100%
25	Investment Decisions	3 25%	9 75%	0%	12 100%
7	Close a Product line	2 17%	10 83%	0%	12 100%
11	Start a New Distribution Channel	1 8%	11 92%	0%	12 100%
21	Determine Optimal Product Mix	1 8%	11 92%	0%	12 100%
28	Determine Credit Policy	1 8%	11 92%	0%	12 100%
30	Atomization	1 8%	11 92%	0%	12 100%
12 S	Close an Existing Distribution Channel	0 0%	12 100%	0%	12 100%
19	Discontinue Business Sector	0 0%	12 100%	0%	12 100%
20	Start New Business Sector	0 0%	12 100%	0%	12 100%
31	Others	0 0%	12 100%	0%	12 100%

Table2: Tasks Performed by Managers Using Fully Computerized AIS

	Tasks Performed	Yes	No	No Response	Total(N)
13	Inventory Valuation	37 74%	10 20%	3 6%	50 100%
10	Inventory Control	35 70%	12 24%	3 6%	50 100%
4	Pricing the Product	31 62%	16 32%	3 6%	50 100%
14	Asset Valuation	31 62%	16 32%	3 6%	50 100%
23	Control	30 60%	17 34%	3 6%	50 100%
9	Purchase Raw Materials	28 56%	19 38%	3 6%	50 100%
15	Determine Wage Rates	28 56%	19 38%	3 6%	50 100%
17	Evaluating Profit Centers	27 54%	20 40%	3 6%	50 100%
6	Sell an Asset	24 48%	23 46%	3 6%	50 100%
24	Supervision	24 48%	23 46%	3 6%	50 100%
5	Buy an Asset	22 44%	25 50%	3 6%	50 100%
2	Determine Production Quantity	21 42%	26 52%	3 6%	50 100%
3	Determine Amount of Sales	21 42%	26 52%	3 6%	50 100%
1	Product Planning	17 34%	30 60%	3 6%	50 100%
16	Performance Appraisal	16 32%	31 62%	3 6%	50 100%
18	Make or Buy Decisions	16 32%	31 62%	3 6%	50 100%
22	Planning	14 28%	33 66%	3 6%	50 100%
29	Borrowing Decisions	14 28%	33 66%	3 6%	50 100%
8	Start a new Product Line	11 22%	36 72%	3 6%	50 100%
19	Discontinue Business Sector	11 22%	36 72%	3 6%	50 100%
20	Start New Business Sector	11 22%	36 72%	3 6%	50 100%
27	Determine Dividends Policy	11 22%	36 72%	3 6%	50 100%
7	Close a Product line	10 20%	37 74%	3 6%	50 100%
26	Determine Board of Directors Rewards	10 20%	37 74%	3 6%	50 100%
25	Investment Decisions	9 18%	38 76%	3 6%	50 100%
28	Determine Credit Policy	9 18%	38 76%	3 6%	50 100%
30	Atomization	8 16%	39 78%	3 6%	50 100%
11	Start a New Distribution Channel	5 10%	42 84%	3 6%	50 100%
12	Close an Existing Distribution Channel	5 10%	42 84%	3 6%	50 100%
21	Determine Optimal Product Mix	5 10%	42 84%	3 6%	50 100%
31	Others	3 6%	44 88%	3 6%	50 100%

## Appendix B: Tasks Performed (decisions made) by Managers Using AIS

**Table -1: Tasks Performed by Managers (All individuals in the Sample)**

	Tasks Performed	Yes	No	No Response	Total (N)
10	Inventory Control	42 65%	19 30%	3 5%	64 100%
13	Inventory Valuation	42 65%	19 30%	3 5%	64 100%
14	Asset Valuation	38 59%	23 36%	3 5%	64 100%
15	Determine Wage Rates	38 59%	23 36%	3 5%	64 100%
4	Pricing the Product	36 56%	25 39%	3 5%	64 100%
23	Control	36 56%	25 39%	3 5%	64 100%
9	Purchase Raw Materials	33 51%	28 44%	3 5%	64 100%
17	Evaluating Profit Centers	32 50%	29 45%	3 5%	64 100%
6	Sell an Asset	31 48%	30 47%	3 5%	64 100%
24	Supervision	30 47%	31 48%	3 5%	64 100%
3	Determine Amount of Sales	28 43%	33 52%	3 5%	64 100%
5	Buy an Asset	27 42%	34 53%	3 5%	64 100%
2	Determine Production Quantity	25 39%	36 56%	3 5%	64 100%
16	Performance Appraisal	23 36%	38 59%	3 5%	64 100%
1	Product Planning	22 34%	39 61%	3 5%	64 100%
18	Make or Buy Decisions	20 31%	41 64%	3 5%	64 100%
22	Planning	19 39%	42 66%	3 5%	64 100%
29	Borrowing Decisions	18 28%	43 67%	3 5%	64 100%
27	Determine Dividends Policy	15 23%	46 72%	3 5%	64 100%
8	Start a new Product Line	14 22%	47 73%	3 5%	64 100%
26	Determine Board of Directors' Rewards	14 22%	47 73%	3 5%	64 100%
7	Close a Product line	12 18%	49 77%	3 5%	64 100%
25	Investment Decisions	12 18%	49 77%	3 5%	64 100%
19	Discontinue Business Sector	11 17%	50 78%	3 5%	64 100%
20	Start New Business Sector	11 17%	50 78%	3 5%	64 100%
28	Determine Credit Policy	11 17%	50 78%	3 5%	64 100%
30	Automization	9 14%	52 81%	3 5%	64 100%
11	Start a New Distribution Channel	6 9%	55 86%	3 5%	64 100%
21	Determine Optimal Product Mix	6 9%	55 86%	3 5%	64 100%
12	Close an Existing Distribution Channel	5 7%	56 88%	3 5%	64 100%
31	Others	3 4%	58 91%	3 5%	64 100%

Q#	Question	S.A.	A.	N.A. nor DA.	DA.	S. DA.
	Decision Efficiency					
25	Some managerial decisions are delayed because of accounting information overload					
26	Accounting information overload brings about bad timeliness of the decisions made by managers					
27	Some decisions are put off because of accounting information overload					
	Decision Effectiveness					
28	Wrong decision are made by managers because of accounting information overload					
29	Inaccurate decisions are made by managers because of accounting information overload					
30	Accounting information overload cause managers to make inconsistent decisions					
31	Accounting information overload results in a lack of confidence in decisions made by managers					
	Decision Accuracy					
32	Accounting information overload creats conflict among decisions made by managers					
33	Decisions made by managers lack consensus because of accounting information overload					

Please check here if you would like to have a copy of the results of this research

Q#	Question	S.A.	A.	N.A. nor DA.	DA.	S. DA.
	Redundancy					
8	Some of the reports produced by the AIS are Redundant					
9	Some information are Redundant within the same AIS reports					
10	Some reports produced by the AIS are not summarized (aggregated)					

Q#	Question	S.A.	A.	N.A. nor DA.	DA.	S. DA.
	Information Quality					
11	Some AIS reports are not prioritized					
12	Some AIS reports are not organized					
13	Some AIS reports are not summarized					
14	Some AIS reports contain no charts					
15	Some AIS reports are characterized by inconsistency between numbers and description					
16	Some AIS reports don't satisfy management needs					
17	Some AIS reports are not clear					
18	Some AIS reports are general					

#Q	Question	.S.A	.A	.N.A nor .DA	.DA	.S .DA
	Irrelevant Information					
19	Some AIS reports are not consistent with management needs					
20	Some AIS reports are erroneous					
21	Some AIS reports are not suitable for making decisions					
22	Some AIS reports are not suitable for taking decisions					
23	Some AIS reports are not submitted to the right person					
24	Some AIS reports are not submitted at the right time					

**Third: Scale used for responses to Questions**

Please tick the appropriate statement which reflects the situation in your company according to the following scale:

Scale	Percent	Symbol used
Strongly Agree	80% to 100%	S.A.
Agree	60% to 79%	A.
Neither Agree Nor Disagree	40% to 59%	N.A. nor DA.
Disagree	20% to 39%	DA.
Strongly Disagree	Less than 20%	S. DA.

**Fourth: Questions of the Questionnaire**

Q#	Question	S.A.	A.	N.A. nor DA.	DA.	S. DA.
	Information Cues					
1	The number of reports produced by the AIS exceeds the management needs					
2	The amount of details within the AIS reports are excessive					
3	AIS produces excessive types of reports					
4	Some of the figures produced by the AIS reports are unjustifiable					

Q#	Question	S.A.	A.	N.A. nor DA.	DA.	S. DA.
	Time Constraint					
5	Too many reports are produced by the AIS for the management to read					
6	Some reports are set aside because of the lack of time					
7	Some reports are prioritized by the management because of the lack of time					

### Appendix A: The questionnaire

**First: General information**

Please tick the appropriate statement

**Age:**

<input type="checkbox"/> Less than 30	<input type="checkbox"/> From 30 to less than 40	<input type="checkbox"/> From 40 to less than 50
<input type="checkbox"/> From 50 to less than 60	<input type="checkbox"/> More than 60	

**Education:**

<input type="checkbox"/> Diploma	<input type="checkbox"/> Bachelor	<input type="checkbox"/> Master's
<input type="checkbox"/> PhD	<input type="checkbox"/> Others (please specify) .....	

**Specialization:**

<input type="checkbox"/> Accounting	<input type="checkbox"/> Finance and Banking	<input type="checkbox"/> Business Administration
<input type="checkbox"/> Public Administration	<input type="checkbox"/> Others (please specify) .....	

**Years of Experience:**

<input type="checkbox"/> Less than 3 years	<input type="checkbox"/> From 3 to 6 years	<input type="checkbox"/> From 7 to 9 years
<input type="checkbox"/> More than 10 years		

**Training Courses:**

1	.....	3	.....
2	.....	4	.....

Accounting Information System used in the Company:

<input type="checkbox"/> Fully Computerized	<input type="checkbox"/> Partially Computerized	<input type="checkbox"/> Manual
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**Second: Decisions made using accounting information system**

Please check all tasks that you perform using the accounting information system being used in your company

Decision			
1	Product Planning	19	Stop Business Sector
2	Determine Production Quantity	20	Start New Business Sector
3	Determine Amount of Sales	21	Determine Optimal Product Mix
4	Pricing the Product	22	Planning
5	Buy an Asset	23	Control
6	Sell an Asset	24	Supervision
7	Close a Product line	25	Investment Decisions
8	Start a new Product Line	26	Determine Board of Directors Rewards
9	Purchase Raw Materials	27	Determine Dividends Policy
10	Inventory Control	28	Determine Credit Policy
11	Start a New Distribution Channel	29	Borrowing Decisions
12	Close an Existing Distribution Channel	30	Atomization
13	Inventory Valuation	31	(Others (please specify
14	Asset Valuation		.....
15	Determine Wage Rates		.....
16	Performance Appraisal		.....
17	Evaluating Profit Centers		.....
18	Make or Buy Decisions		.....



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## 6. Summary, Conclusions and Recommendations

### 6.1 Summary and Conclusions

According to the data analysis results, it is evident that accounting information overload does not exist for financial managers working in the manufacturing companies in Jordan. Information cues, time constraint, redundancy of information, poor information quality and irrelevant information are five sources of accounting information overload tested in the study. The results can be summarized as follows:

Firstly, managers in both groups (the partially computerized AIS companies group and the fully computerized AIS companies group) do not agree that the large quantity of information produced by accounting information systems is excessive. Secondly, managers do not lack time, handling information received from accounting information systems. Thirdly, accounting information systems do not produce too much redundant information. Forth, information produced by accounting information systems is not of poor quality. Fourthly, accounting information systems do not produce too much irrelevant information. In other words, the study shows the absence of sources of accounting information overload. Consequently, managers could not be regarded as suffering from accounting information overload.

Moreover, the result of testing the effect of accounting information overload, on the quality of managerial decisions, is consistent with the finding of the absence of accounting information overload and it might confirm the absence of any other sources of accounting information overload. The result of H6 test indicates that accounting information overload has no adverse effect on the quality of managerial decisions.

Finally, the result of comparing companies using partially computerized and those using fully computerized accounting information systems, indicates that the use of computers bears no responsibility of overloading managers with accounting information. There are no statistically significant differences between the means of responses to all questions of the questionnaire between the two groups.

### 6.2 Recommendations

The use of computers in manufacturing companies in Jordan is not advanced enough; none of the companies investigated agrees that their accounting information system is entirely computerized. In fact, most companies are using computers in their information systems. However, the degree to which computers are utilized in information systems in general and accounting information systems in particular, could not be regarded as satisfactory.

Therefore, we recommend a more extensive use of computers in organizations to reap the benefits of advances in information technology. However, the issue of information overload should be taken into consideration.

### 6.3 Suggestions for Further Research

Even though this study confirms the absence of accounting information overload in Jordanian manufacturing companies, it does not confirm whether managers receive exactly the required information or not. In other words, the study reveals nothing about whether managers receive exactly what they need or want?

Moreover, this study does not check whether managers lack information. The absence of accounting information overload does not necessarily mean that managers do not lack information. Further studies are required to check if managers receive exactly the required information.

## 5.2.2 Summary of the Results of Two Sample Test

Table 45: Summary of the Results of Two Sample Tests of Hypotheses

H #	Hypothesis	t-value	Test Result*
H1	There are no statistically significant differences between the number of reports produced by fully computerized accounting information systems and those produced by partially computerized accounting information systems.	1.18	Accepted
H2	There are no statistically significant differences between the ability of Managers to handle all information received from fully computerized accounting information systems than those received from partially computerized accounting information systems because of time constraint	0.67	Accepted
H3	There are no statistically significant differences between the amount of redundant information produced by fully computerized accounting information systems and those produced by partially computerized accounting information systems	0.70	Accepted
H4	There are no statistically significant differences between the quality of Information produced by fully computerized accounting information systems and those produced by partially computerized accounting information systems	0.69	Accepted
H5	There are no statistically significant differences between the amount of irrelevant information produced by fully computerized accounting information systems and those produced by partially computerized accounting information systems.	1.50	Accepted
H6	There are no statistically significant differences of the adverse effect of accounting information overload on the quality of managerial decisions between fully computerized accounting information systems and partially computerized accounting information systems.		Accepted
	H6a: There are no statistically significant differences of the adverse effect of accounting information overload on the efficiency of managerial decisions between fully computerized accounting information systems and partially computerized accounting information systems.	0.39	Accepted
	H6b: There are no statistically significant differences of the adverse effect of accounting information overload on the effectiveness of managerial decisions between fully computerized accounting information systems and partially computerized accounting information systems.	0.69	Accepted
	H6c: There are no statistically significant differences of the adverse effect of accounting information overload on the accuracy of managerial decisions between fully computerized accounting information systems and partially computerized accounting information systems.	1.19	Accepted

\* Hypothesis which states the equality of means between the two groups will be rejected if t statistic is more than 2 or less than -2 (  $-2 > t > 2$  ) and will be accepted otherwise

questions reflect the managers' points of view due to their past experience or the current situation. For example, managers could have suffered an adverse effect because of information overload in the past, but they have developed techniques to override this undesirable effect. Moreover, the result of H6 test could be interpreted as the absence of any other sources of accounting information overload, which are not tested in this study.

#### 5.4.1 Summary of the Results of One Sample Test

Table 44: Summary of the Results of One Sample Tests of Hypotheses

H #	Hypothesis	t	Test Result*
H1	A large number of reports are received by managers which make them prone to accounting information overload	-2.821	Rejected
H2	Managers cannot handle all information they receive from the accounting information system because of time constraint	-1.373	Rejected
H3	Much of the information produced by the accounting information system is redundant	-3.858	Rejected
H4	Information produced by the accounting information system is of poor quality	-8.485	Rejected
H5	The accounting information system produces too much irrelevant information	-11.718	Rejected
H6	Accounting information overload has an adverse effect on the quality of managerial decisions		Rejected
	H6a: Accounting information overload has an adverse effect on the efficiency of managerial decisions	-3.240	Rejected
	H6b: Accounting information overload has an adverse effect on the effectiveness of managerial decisions	-8.366	Rejected
	H6c: Accounting information overload has an adverse effect on the accuracy of managerial decisions	-6.560	Rejected

\* Hypotheses with t value less than 1.658 are rejected

fully computerized and partially computerized AIS do not believe that accounting information overload adversely affects the accuracy of managerial decisions.

**42: Descriptive Statistics for H6c (Partially Computerized AIS Companies)**

Q#	H6c Questions	N	Mean	Std. Deviation
32	Accounting information overload creates conflict among decisions made by managers	12	2.67	0.98
33	Decisions made by managers lack consensus because of accounting information overload	12	2.42	1.08
	Average		2.54	1.03

As is the case with H6a and H6b, the t-test shows no significant differences between the two groups. t with the mean value of 1.19 means that there are no statistically significant differences between the fully computerized AIS companies group and the partially computerized AIS companies group responses. Table 43 summarizes the result of t-test.

**Table 43: The Result of Two-tailed t-test for Equality of Means**

Q#	H6c Questions	t-test for Equality of Means	
		t	df
32	Accounting information overload creates conflict among decisions made by managers	1.86	60
33	Decisions made by managers lack consensus because of accounting information overload	0.52	60
	Average	1.19	

Finally, the study of the effect of accounting information overload on the quality of managerial decisions, for a sample in which its members are not suffering from this phenomenon, could be somewhat controversial. H1 through H5 are designed to test the existence of accounting information overload through testing the existence of sources and symptoms of accounting information overload. As discussed earlier, accounting information overload seems to have no existence; managers are not experiencing accounting information overload. Therefore, the result of H6 should be interpreted with caution.

Questions testing H6 are not dependent on whether managers are overloaded or not. In other words, H6 questions are not designed under the assumption that managers are suffering from accounting information overload. Consequently, even if managers are not overloaded, H6 questions are still valid. This is because H6 questions are not correlated to questions relating to H1 through H5.

As mentioned earlier, H6 questions are designed to test subjectively, the effect of accounting information overload on the quality of managerial decisions. In other words, answers to these

value of t statistic average 0.69. which is less than the acceptable value of 2 to reject the equality of means hypothesis. Table 40 summarizes t statistic for H6b.

**Table 40: The Result of Two-tailed t-test for Equality of Means**

Q#	H6b Questions	t-test for Equality of Means	
		t	df
28	Wrong decisions are made by managers because of accounting information overload	0.44	60
29	Inaccurate decisions are made by managers because of accounting information overload	0.79	60
30	Accounting information overload causes managers to make inconsistent decisions	1.10	60
31	Accounting information overload results in a lack of confidence in decisions made by managers	0.42	60
	Average	0.69	

H6c: Accounting information overload has an adverse effect on the accuracy of managerial decisions

Table 41 shows questions 32 and 33 as well as responses to these questions. The means of responses have an average of 2.18 with a standard deviation of 0.97. This is equivalent to "Neither agree nor disagree" according to Likert scale. In other words, managers of the fully computerized AIS companies group disagree that accounting information overload has an adverse effect on the accuracy of managerial decisions.

**Table 41: Descriptive Statistics for H6c (Fully Computerized AIS Companies)**

Q#	H6c Questions	N	Mean	Std. Deviation
32	Accounting information overload brings creates among decisions made by managers	50	2.12	0.90
33	Decisions made by managers lack consensus because of accounting information overload	50	2.24	1.04
	Average		2.18	0.97

For the partially computerized AIS companies group, as shown in table 42 below, the average of the means of responses to H6c questions is 2.54 with a standard deviation of 1.03. This is equivalent to "Neither agree nor disagree" according to the Likert scale. Consequently, managers dealing with

The means of responses to questions 28 through 31 averaged 2.14 with a standard deviation of 1.04. According to Likert scale, this is equivalent to "Neither agree nor disagree". Table 38 shows the result of the responses of fully computerized AIS companies group.

**Table 38: Descriptive Statistics for H6b (Fully Computerized AIS Companies)**

Q#	H6b Questions	N	Mean	Std. Deviation
28	Wrong decisions are made by managers because of accounting information overload	50	2.14	1.03
29	Inaccurate decisions made by managers because of accounting information overload	50	2.24	1.06
30	Accounting information overload causes managers to make inconsistent decisions	50	2.16	0.96
31	Accounting information overload results in a lack of confidence in decisions made by managers	50	2.02	1.10
	Average		2.14	1.04

For partially computerized AIS group, the average of the means of responses to H6b questions is 2.29 with a standard deviation of 0.89 as shown in table 39 below. This is equivalent, according to Likert scale, to

**Table 39: Descriptive Statistics for H6b (Partially Computerized AIS Companies)**

Q#	H6b Questions	N	Mean	Std. Deviation
28	Wrong decisions are made by managers because of accounting information overload	12	2.00	0.74
29	Inaccurate decisions are made by managers because of accounting information overload	12	2.50	0.80
30	Accounting information overload causes managers to make inconsistent decisions	12	2.50	1.00
31	Accounting information overload results in a lack of confidence in decisions made by managers	12	2.17	1.03
	Average		2.29	0.89

"Neither agree nor disagree". In other words, neither managers of the fully computerized AIS companies group nor managers of the partially computerized AIS companies group believe that accounting information overload adversely affects the efficiency of managerial decisions.

The t-test asserts the above result. According to the value of t conducted for questions 28 through 31, there are no statistically significant differences between the responses of the two groups. The



For the partially computerized AIS group, managers have the same feeling toward the effect of accounting information overload on the efficiency of managerial decisions as for the fully computerized AIS group. The means of responses to questions 25 through 27 have an average of 2.53 (see table 36 below) which lies in "Neither agree nor disagree" category according to Likert scale. In other words, neither managers in the fully computerized AIS companies group nor managers in the partially computerized AIS companies group, agree that accounting information overload impairs decision efficiency.

**Table 36: Descriptive Statistics for H6a (Partially Computerized AIS Companies)**

Q#	H6a Questions	N	Mean	Std. Deviation
25	Some managerial decisions are delayed because of accounting information overload	12	2.75	1.22
26	Accounting information overload brings about bad timeliness of the decisions made by managers	12	2.33	1.30
27	Some decisions are put off because of accounting information overload	12	2.50	1.24
	Average		2.53	1.25

The result of the t test supports the conclusion that managers in both agree on the effect of accounting information overload on the efficiency of managerial decisions. As shown in table 37, the average of t statistic is 0.38 which is less than 2. Statistically speaking, the hypothesis which equates the means of responses of the two categories cannot be rejected. In other words, according to t statistic, there are no statistically significant differences between the means of responses of the two categories.

**Table 37: The Result of Two-tailed t-test for Equality of Means**

Q#	H6a Questions	t-test for Equality of Means	
		t	Df
25	Some managerial decisions are delayed because of accounting information overload	0.32	60
26	Accounting information overload brings about bad timeliness of the decisions made by managers	0.62	60
27	Some decisions are put off because of accounting information overload	0.24	60
	Average	0.39	

**H6b: Accounting information overload has and adverse effect on the effectiveness of managerial decisions**

**Table 30: Descriptive Statistics for H4 (Partially Computerized AIS Companies)**

Q#	H4 Questions	N	Mean	Std. Deviation
11	Some AIS reports are not prioritized	12	2.42	0.67
12	Some AIS reports are not organized	12	2.08	0.90
13	Some AIS reports are not summarized	12	2.75	1.06
14	Some AIS reports contain no charts	12	3.25	1.14
15	Some AIS reports are characterized by inconsistency between numbers and description	12	2.17	0.94
16	Some AIS reports don't satisfy management needs	11	2.27	1.01
17	Some AIS reports are not clear	12	2.00	0.74
18	Some AIS reports are general	12	2.83	0.83
	Average		2.47	0.91

The results of the t test for the two groups show no statistically significant differences between the means of responses of the two groups. t has an average of 0.69 for H4. In other words, the use of computers in accounting could not be considered as exposing any significant effect on influencing the quality of information produced by the accounting information system. Table 31 summarizes the result of t-test .

H5: The accounting information system produces much irrelevant information

As shown in table 32, the average of the means of responses to questions 19 through 24 is 1.83 with a standard deviation of 0.89. According to Likert scale, this is equivalent to "Disagree". In other words, managers

**Table 31: The Result of Two-tailed t-test for Equality of Means**

Q#	H4 Questions	t-test for Equality of Means	
		t	df
11	Some AIS reports are not prioritized	0.66	60
12	Some AIS reports are not organized	1.15	60
13	Some AIS reports are not summarized	0.46	60
14	Some AIS reports contain no charts	0.02	60
15	Some AIS reports are characterized by inconsistency between numbers and description	0.93	60
16	Some AIS reports don't satisfy management needs	0.88	59
17	Some AIS reports are not clear	0.29	60
18	Some AIS reports are general	1.18	60
	Average	0.69	

### 28: The Result of Two-tailed t-test for Equality of Means

Q#	H3 Questions	t-test for Equality of Means	
		t	df
8	Some of the reports produced by the AIS are Redundant	0.13	60
9	Some information are Redundant within the same AIS reports	0.39	60
10	Some reports produced by the AIS are not summarized ((aggregated	1.59	60
	Average	0.70	

H4: Information produced by the accounting information system is of poor quality

As shown in table 29, the average of the means of responses is 2.25 with a standard deviation of 1.07. According to Likert scale, this average is equivalent to "Neither agree nor disagree". In other words, information produced by fully computerized accounting information systems does not seem to be of poor quality.

**Table 29: Descriptive Statistics for H4 (Fully Computerized AIS Companies)**

Q#	H4 Questions	N	Mean	Std. Deviation
11	Some AIS reports are not prioritized	50	2.20	1.09
12	Some AIS reports are not organized	50	1.76	0.87
13	Some AIS reports are not summarized	50	2.58	1.18
14	Some AIS reports contain no charts	50	3.26	1.34
15	Some AIS reports are characterized by inconsistency between numbers and description	50	1.86	1.05
16	Some AIS reports don't satisfy management needs	50	1.98	1.00
17	Some AIS reports are not clear	50	1.92	0.88
18	Some AIS reports are general	50	2.42	1.14
	Average		2.25	1.07

For partially computerized AIS companies, the average of the means of responses to questions 11 through 18, as shown in table 30, equals 2.47 or "Neither agree nor disagree" with a standard deviation of 0.91. The average of 2.47 means that information produced by partially computerized accounting information systems is not of poor quality.

**H3: Much of the information produced by accounting information systems is redundant.**

As shown in table 26, the average of the means of responses to questions 8, 9 and 10 is 2.48. This is equivalent to "Neither agree nor disagree" according to the Likert scale. Consequently, computerized accounting information systems might be looked upon as not producing too much redundant information.

**Table 26: Descriptive Statistics for H3 (Fully Computerized AIS Companies)**

Q#	H3 Questions	N	Mean	Std. Deviation
8	Some of the reports produced by the AIS are Redundant	50	2.72	1.26
9	Some information are Redundant within the same AIS reports	50	2.28	1.05
10	Some reports produced by the AIS are not summarized (aggregated)	50	2.44	1.11
	Average		2.48	1.14

The case with partially computerized AIS companies group seems to be the same. It seems that partially computerized accounting information systems do not produce too much redundant information either. This is because the average of the means of responses to questions 8, 9, and 10 is less than 3 (2.69). Table 27 below summarizes descriptive statistics for H3.

**Table 27: Descriptive Statistics for H3 (Partially Computerized AIS companies)**

Q#	H3 Questions	N	Mean	Std. Deviation
8	Some of the reports produced by the AIS are Redundant	12	2.67	1.30
9	Some information are Redundant within the same AIS reports	12	2.42	1.31
10	Some reports produced by the AIS are not summarized (aggregated)	12	3.00	1.04
	Average		2.69	1.22

Table 28 tests if there are any significant differences between the means of responses to H3 questions of the two groups. The result of t statistic shows no statistically significant differences between responses of fully or partially computerized AIS companies. The average value of t is 0.70 which is less than the accepted value to reject the equality of means. Consequently, there are no statistically significant differences between the means of responses of the two groups. In other words, the use of computer could be considered as neither increasing nor decreasing any redundancy of accounting information.

The case with partially computerized AIS companies appears to be the same. The average of the means of responses is 2.81 with a standard deviation of 1.09. This is equivalent to "Neither agree nor disagree" according to the scale used in this study. In other words, time constraint, as a source of accounting information overload is not a problem for partially computerized AIS companies. Table 23 summarizes descriptive statistics of H2 for partially computerized AIS companies.

Table 24 also shows an acceptable value for the third question of the questions set of H2. The mean of responses to this question is 3.17 or "Agree" according to the Likert scale. Compared to the mean value of 2.94 for fully computerized AIS companies, this might indicate that the use of computers has slightly solved the problem of prioritizing reports. However, the results of the t-test in table 24, shows if there are any significant differences between the two groups.

**Table 24: Descriptive Statistics for H2 (Partially Computerized AIS companies)**

Q#	H2 Questions	N	Mean	Std. Deviation
5	Too many reports are produced by the AIS for the management to read	12	2.58	1.08
6	Some reports are set aside because of the lack of time	12	2.67	1.15
7	Some reports are prioritized by the management because of the lack of time	12	3.17	1.03
	Average		2.81	1.09

As shown in table 25, the average value of t for the second set of questions is 0.67, which is less than the acceptable value of 2 to reject the null hypothesis. In other words the null hypothesis which claims the absence of differences between the mean values of responses to questions of the two groups, will be accepted. Put differently, according to the results of the t-test, there are no statistically significant differences between the means of responses of the two groups. This means that the use of computers in accounting information systems could be seen as having no effect on increasing information load, to an extent that managers become unable to deal with this excessive information under their time constraint.

**Table 25: The Result of Two-tailed t-test for Equality of Means**

Q#	H2 Questions	t-test for Equality of Means	
		t	df
5	Too many reports are produced by the AIS for the management to read	0.50	60
6	Some reports are set aside because of the lack of time	0.91	60
7	Some reports are prioritized by the management because of the lack of time	0.59	60
	Average	0.67	

Descriptive statistics for H1 shows that information cues as a source of accounting information overload is not a factor for either fully and partially computerized AIS companies. However, a two-tailed t-test is conducted to check if there are any significant differences between the means of the responses of the two groups. As shown in table 22 below, the result of the t-test assures the absence of any significant differences between the means of responses of the two groups. The average value of t for questions relate to H1 is 1.18 which is less than the acceptable value of 2 to reject the null hypothesis<sup>12</sup>. Therefore, the null hypothesis which states the equality of means between the two groups is accepted. In other words, there are no statistically significant differences between the means of the two groups. In general, neither the fully computerized AIS group nor the partially computerized AIS group are suffering excessive information cues.

**Table 22: The Result of Two-tailed t-test for Equality of Means**

Q#	H1 Questions	t-test for Equality of Means	
		t	df
1	The number of reports produced by the AIS exceeds the management needs	1.30	60
2	The amount of details within the AIS reports are excessive	0.94	60
3	AIS produces excessive types of reports	1.80	60
4	Some of the figures produced by the AIS reports are unjustifiable	0.69	59
	Average	1.18	

**H2: Managers cannot handle all information they receive from the accounting information system because of time constraint**

As shown in table 23 below, the average of the means of responses to H2 questions is less than 3 (2.89) with a standard deviation of 1.10. This is equivalent to “Neither agree nor disagree” according to the Likert scale. In other words, managers do not lack time to handle all reports produced by the computerized accounting information system. On the contrary, it seems that managers have enough time to handle all reports produced by their computerized accounting information systems.

**Table 23: Descriptive Statistics for H2 (Fully Computerized AIS companies)**

Q#	H2 Questions	N	Mean	Std. Deviation
5	Too many reports are produced by the AIS for the management to read	50	2.76	1.10
6	Some reports are set aside because of the lack of time	50	2.96	0.97
7	Some reports are prioritized by the management because of the lack of time	50	2.94	1.22
	Average		2.89	1.10

Table 20 below shows the results of responses to the first four questions. As shown in the table below, for the fully computerized AIS group, the average of the means of responses is 2.81 with an average standard deviation of 1.04. This is equivalent to "Neither agree nor disagree" according to the Likert scale. Consequently, the likelihood that managers receive too much accounting information is not substantiated, in general, for the fully computerized AIS companies group. However, there appears to be two sources of accounting information overload, as shown in the means of responses to the first and fourth question (3.02 and 3.16 respectively). These values indicate that respondents agree that the magnitude and types of reports received are excessive.

**Table 20: Descriptive Statistics for H1 (Fully Computerized AIS Companies)**

Q#	H1 Questions	N	Mean	Std. Deviation
1	The number of reports produced by the AIS exceeds the management needs	50	3.02	1.08
2	The amount of details within the AIS reports are excessive	50	2.90	1.07
3	AIS produces excessive types of reports	50	3.16	1.00
4	Some of the figures produced by the AIS reports are unjustifiable	49	2.14	1.02
	Average		2.81	1.04

For partially computerized AIS companies group, the average of the means of responses to H1 questions is 2.42 with an average standard deviation of 0.95. This is equivalent to "Neither agree nor disagree" according to the Likert scale. Consequently, excessive information cues as a source of accounting information overload is not a factor for the partially computerized AIS companies group. The following table summarizes descriptive statistics of H1 for partially computerized AIS companies.

**Table 21: Descriptive Statistics for H1 (Partially Computerized AIS companies)**

Q#	H1 Questions	N	Mean	Std. Deviation
1	The number of reports produced by the AIS exceeds the management needs	12	2.58	0.90
2	The amount of details within the AIS reports are excessive	12	2.58	0.90
3	AIS produces excessive types of reports	12	2.58	1.00
4	Some of the figures produced by the AIS reports are unjustifiable	12	1.92	1.00
	Average		2.42	0.95

information overload could be considered as having no adverse effect on the accuracy of managerial decisions.

Since none of the sub hypotheses are accepted, H6 is rejected. In other words, accounting information overload could be considered as having no adverse effect on the quality of managerial decisions, made by managers working in the manufacturing companies in Jordan.

A two-sample test is conducted for further investigation. The purpose of the two sample test is to find out the effect of the use of computers on the information overload phenomenon. In other words, the two-sample test aims mainly to highlight the existence of any differences that may occur due to the use of computers. In fact, the two-sample test conducted below aims mainly to answer two questions:

First, are managers who are dealing with fully computerized accounting information systems more prone to accounting information overload than those using partially computerized or manual accounting information systems? Second, does information overload have more effect on the quality of managerial decisions for managers dealing with fully computerized accounting information systems than those dealing with partially computerized or manual accounting information systems?

In brief, the aim of two-sample test is to find out if computers bear the responsibility of the emergence of accounting information overload.

### 5.3 Two Sample Test of the Hypotheses

The sample is divided into two main categories, according to the type of accounting information system being used in the company. The first category consists of all companies, which have their accounting information systems fully computerized. This category will be called "fully computerized AIS companies". The second category consists all companies whose accounting information systems are not fully computerized or partially computerized. This category will be classified as "partially computerized AIS companies."

The terms "fully computerized AIS" and "partially computerized AIS" in the context of this study, need further clarification. The term "fully computerized AIS" implies to the reader the use of computers in all aspects of the accounting information system in the company. This assumption is not valid for manufacturing companies in Jordan. In fact, paper work is still inevitable in almost all organizations in Jordan. However, the term "fully computerized AIS" will be used to indicate the extensive use of computers in the company. More specifically, it will be used to imply that approximately 90% or more, of accounting related tasks are performed automatically using the computer, and only a few tasks are still not computerized (not more than 10% of the entire tasks). On the other hand, the term "Partially computerized AIS" will be used in this context to imply a moderate use of computers, in performing accounting related tasks in the company. In other words, approximately not more than 50% of accounting tasks performed in the company are computerized and the remaining tasks are performed manually.

Out of 64 companies taken in the sample, two companies are using a manual accounting information system. These companies were excluded from the study because the sample is less than 3. The following section provides a summary of the two sample tests of the hypotheses of the study.

**H1: A large number of reports are received by managers which make them prone to accounting information overload.**



Table 17 below shows statistical test of H6b. Two Hypotheses were developed to test H6b:  
 $H_0: \mu \leq 3$  ,  $H_a: \mu > 3$

**Table 17: The Result of H6b Test**

H #	Hypothesis	Test Value $\mu = 3$	
		t	Df
H6b	Accounting information overload has an adverse effect on the effectiveness of managerial decisions	-8.366	63

**H6c: Accounting information overload has an adverse effect on the accuracy of managerial decisions**

Two questions are designed to test the effect of accounting information overload on the accuracy of managerial decisions. Table 18 shows questions 32 and 33 as well as responses to these questions. The means of responses have an average of 2.27 with a standard deviation of 0.89. This is equivalent to "Neither agree nor disagree" according to the Likert scale. In other words, managers do not believe that accounting information overload has an adverse effect on the accuracy of managerial decisions. Table 18 below shows descriptive

**Table 18: Descriptive statistics of H6c**

Q#	H6c Questions	N	Mean	Std. Deviation
32	Accounting information overload causes conflict among decisions made by managers	64	2.25	0.93
33	Decisions made by managers lack consensus because of accounting information overload	64	2.30	1.03
	Average		2.27	0.89

Table 19 below shows statistical test for H6c. Two Hypotheses were developed to test H6c:  
 $H_0: \mu \leq 3$  ,  $H_a: \mu > 3$

**Table 19: The Result of H6c Test**

H #	Hypothesis	Test Value $\mu = 3$	
		t	df
H6c	Accounting information overload has an adverse effect on the accuracy of managerial decisions	-6.560	63

As shown in table 19, the value of t is -6.560 which is less than the value of  $t_{\alpha}$  of 1.658. Statistically speaking,  $H_0$  cannot be rejected while H6c is rejected. In other words, accounting

acceptance or rejection of the hypothesis depends on the value of  $t$  computed at a significance level ( $\alpha$ ) of 0.05. If  $t > t_{\alpha}$ ,  $H_0$  will be rejected. Otherwise,  $H_0$  will not be rejected".

**Table 15: The Result of H6a Test**

H #	Hypothesis	Test Value $\mu = 3$	
		t	df
H6a	Accounting information overload has an adverse effect on the efficiency of managerial decisions	-3.240	63

Table 15 above shows the result of H6a test. As shown in the table, the null hypothesis ( $H_0: \mu \leq 3$ ) cannot be rejected because  $t < t_{\alpha}$ . The value of  $t$  is -3.240 which is less than  $t_{\alpha}$  of 1.658. Consequently,  $H_0$  cannot be rejected. On the contrary, H6a will be rejected. In other words, managers do not believe that accounting information overload has an adverse effect on the efficiency of managerial decisions.

H6b: Accounting information overload has an adverse effect on the effectiveness of managerial decisions

H6b measures the effect of accounting information overload on the effectiveness of managerial decisions. Questions 28 through 31 are designed for this purpose. The means of responses to questions 28 through 31 average 2.17 with a standard deviation of 0.80. According to the Likert scale, this is equivalent to "Neither agree nor disagree". In other words, accounting information overload could be seen as having no adverse effect on the effectiveness of managerial decisions. Table 16 shows descriptive statistics of H6b.

As shown in table 16, the value of  $t$  is -8.366 which is less than the value of  $t_{\alpha}$  of 1.658. Statistically speaking,  $H_0$  cannot be rejected while H6b is rejected. In other words, accounting information overload might be regarded as having no adverse effect on the effectiveness of managerial decisions.

**Table 16: Descriptive statistics of H6b**

Q#	H6b Questions	N	Mean	Std. Deviation
28	Wrong decisions made by managers because of accounting information overload	64	2.11	0.96
29	Inaccurate decisions are made by managers because of accounting information overload	64	2.28	1.00
30	Accounting information overload causes managers to make inconsistent decisions	64	2.22	0.95
31	Accounting information overload results in a lack of confidence in decisions made by managers	64	2.06	1.07
	Average		2.17	0.80

### 5.2.1.5 Irrelevant information

H5: The accounting information system produces much irrelevant information

$$H_0 : \mu \leq 3 , H_a : \mu > 3$$

**Table 13: The Result of H5 Test**

H #	Hypothesis	Test Value $\mu = 3$	
		T	df
H5	The accounting information system produces much irrelevant information	-11.718	61

Table 13 above shows the result of H5 test. As shown in the table above, the value of t is -11.718 which is less than the value of  $t_{\alpha}$  of 1.658. Statistically speaking,  $H_0$  cannot be rejected while H5 is rejected. In other words, irrelevant information as a source of accounting information overload, has no existence either.

### 5.2.2 Testing the effect of accounting information overload on the quality of managerial decisions

Hypothesis number six is divided into three hypotheses. Testing H6 will be conducted through testing H6a, H6b and H6c. Separate tests are conducted for each sub hypothesis.

H6a: Accounting information overload has an adverse effect on the efficiency of managerial decisions.

H6a is designed to test the effect of accounting information overload on the efficiency of managerial decisions. Questions 25 through 27 are designed for this purpose. The average of the means of responses to questions 25, 26 and 27 is 2.60 with a standard deviation of 0.98. According to the Likert scale, this is equivalent to "Neither agree nor disagree". In other words, Managers do not believe that information overload impairs decision efficiency. Table 14 below shows descriptive statistics for H6a.

In order to statistically test H6a, the following hypotheses were developed

$$H_0 : \mu \leq 3 , H_a : \mu > 3$$

Once again,  $\mu$  denotes the average of the means of responses to questions of the hypothesis. The same methodology which was used to test H1 through H5 will be used to test H6a through H6c. In other words,

**Table14: Descriptive statistics of H6a**

Q#	H6a Questions	N	Mean	Std. Deviation
25	Some managerial decisions are delayed because of accounting information overload	64	2.70	1.08
26	Accounting information overload brings about bad timeliness of the decisions made by managers	64	2.53	1.04
27	Some decisions are put off because of accounting information overload	64	2.58	1.05
	Average		2.60	0.98

Table 10: The Result of H2 Test

H #	Hypothesis	Test Value $\mu = 3$	
		T	df
H2	Managers cannot handle all information they receive from the accounting information system because of time constraint	-1.373	63

As shown in table 10 above, H2 is not substantiated because the value of  $t$  is less than 1.658. In other words,  $H_0$  cannot be rejected. Consequently, time constraint plays no role in overloading managers with accounting information.

#### 5.2.1.3 Redundant information

H3: Much of the information produced by the accounting information system is redundant.

$$H_0: \mu \leq 3, H_a: \mu > 3$$

Table 11: The Result of H3 Test

H #	Hypothesis	Test Value $\mu = 3$	
		T	df
H3	Much of the information produced by the accounting information system is redundant.	-3.858	63

Table 11 above shows the result of H3 test. As shown in the table, the null hypothesis cannot be rejected since  $t < t_{\alpha}$ . Table 11 shows a value of  $t$  of -3.858 which is less than the value of  $t_{\alpha}$  of 1.658. Consequently, H3, which claims the existence of redundant information as a source of accounting information overload is rejected.

#### 5.2.1.4 Quality of information

H4: Information produced by the accounting information system is of poor quality

$$H_0: \mu \leq 3, H_a: \mu > 3$$

Table 12: The Result of H4 Test

H #	Hypothesis	Test Value $\mu = 3$	
		T	df
H4	Information produced by the accounting information system is of poor quality	-8.485	62

As shown in table 12 above, the null hypothesis cannot be rejected since  $t < t_{\alpha}$ . Table 12 shows a value of  $t$  of -8.485 which is less than the value of  $t_{\alpha}$  of 1.658. Statistically speaking, H4 which claims that accounting information systems produce information of poor quality, is not substantiated.

## 5.2 One Sample Test of Hypotheses

### 5.2.1 Testing the existence of sources of accounting information overload

Hypothesis one (H1) through hypothesis five (H5) are designed to test the existence of sources of accounting information overload, mentioned earlier. A separate test for each source is conducted below using one tailed t-test. For each hypothesis, a null hypothesis and an alternative hypothesis were developed to conduct the test. The null hypothesis claims that the average of the means of responses to questions of the hypothesis is less than or equals three ( $H_0 : \mu \leq 3$ )<sup>10</sup>. The alternative hypothesis claims that the average of the means of responses to questions of the hypothesis is more than three ( $H_a : \mu > 3$ ).

Acceptance or rejection of the hypothesis depends on the value of t computed at a significance level ( $\alpha$ ) of 0.05. If  $t > t_{\alpha}$ ,  $H_0$  will be rejected and  $H_a$  will be accepted. Otherwise,  $H_0$  will not be rejected.

The value of t at a significance level of  $\alpha = 0.05$  equals 1.658 ( $t_{\alpha = 0.05} = 1.658$ ). This value of t will be used as a benchmark when the decision has to be made about the acceptance or rejection of a hypothesis.

#### 5.2.1.1 Information cues

H1: A large number of reports are received by managers which makes them prone to accounting information overload

In order to test H1, the following null and alternative hypotheses are developed:

$$H_0 : \mu \leq 3, H_a : \mu > 3$$

**Table 9: The Result of H1 Test**

H #	Hypothesis	Test Value $\mu = 3$	
		T	df
H1	A large number of reports are received by managers which makes them prone to accounting information overload	-2.821	62

Table 9 above shows the result of H1 test. As shown in the table above, the null hypothesis cannot be rejected because  $t < t_{\alpha}$ . The value of t as shown in table 9 is -2.821 which is less than  $t_{\alpha}$  of 1.658. Consequently,  $H_0$  cannot be rejected. On the contrary,  $H_1$  will be rejected. This indicates that information cues as a source of accounting information overload has no existence.

#### 5.2.1.2 Time Constraint

H2: Managers cannot handle all information they receive from the accounting information system because of time constraint

$$H_0 : \mu \leq 3, H_a : \mu > 3$$

### 5.1.2 Time Constraint

The second hypothesis concerns another source of accounting information overload which is time constraint. Three questions are designed to test whether managers are able to handle accounting information produced by their accounting information systems under time constraint or not.

In fact, a logical sequence might be inferred from the three questions within this category. If there are too many reports, some should be set aside and prioritization of reports (information) becomes a reasonable behavior. Responses to the three questions (Table 5) indicate a consistency leading to the suggested

**Table 5: Descriptive statistics of time constraint**

Q#	(H2 Questions (Time Constraint	N	Mean	Std. Deviation
5	Too many reports are produced by the AIS for the management to read	64	2.69	1.10
6	Some reports are set aside because of the lack of time	64	2.88	1.02
7	Some reports are prioritized by the management because of the lack of time	64	2.95	1.19
	Average		2.84	0.94

logical sequence since the existence of too many reports has a mean of 2.69, disregarding some reports has a mean of 2.88 and prioritization of reports has a mean of 2.95.

However, from the general perspective, the average of the means of responses to questions 5 through 7 is 2.84 with a standard deviation of 0.94. This is equivalent to "Neither agree nor disagree" according to the Likert scale. A mean value of less than three means that managers do not lack the time necessary to handle accounting information produced by the accounting information system and consequently, managers could be regarded as weakly exposed to this source of accounting information overload.

### 5.1.3 Redundant information

Hypothesis number three tests redundancy of information. Three questions are designed to test H3. The first question relates to redundancy of accounting reports. The second question is about redundancy of information within the same report. The third question pertains to the degree to which accounting reports are aggregated.

**Table 6: Descriptive statistics of redundancy of information**

Q#	H3 Questions (Redundancy)	N	Mean	Std. Deviation
8	Some of the reports produced by the AIS are redundant	64	2.70	1.24
9	Some information is redundant within the same AIS reports	64	2.31	1.08
10	Some reports produced by the AIS are not summarized (aggregated)	64	2.55	1.13
	Average		2.52	0.99

For two sample tests, a two-tailed t-test was conducted to find out if there are any statistically significant differences between fully computerized and partially computerized AIS companies. In other words, the two-tailed t-test was used to show if the use of computers in organizations increases the likelihood of managers being overloaded with accounting information. Hypotheses for two-sample tests were tested using t statistics at a significance level of ( $\alpha$ ) = 0.05.

## 5. Data Analysis and Hypotheses Testing

### 5.1 Descriptive statistics of the sources of accounting information overload

#### 5.1.1 Information Cues

Four questions are designed to test management exposure to accounting information cues. The first four questions, which relate to H1, ask about information cues as a source of accounting information overload. In fact, information cues are considered one of the most important causes of accounting information overload (Chewing and Harrell 1990).

Apart from the responses to question 3, the information provided by the information accounting system could be regarded as satisfying management needs (mean: 2.91), without unnecessary details (mean: 2.83) and representing the required data or absence of unjustifiable data (mean: 2.08). This is more than necessary to balance the mean of responses to question 3, which is 3.03, and close to the cutoff point. Therefore, it could be argued that managers are not highly exposed to a magnitude of accounting information cues. This conclusion is further enhanced by the general orientation of responses to all four questions, represented by the average of responses. As shown in table 4 below, the average of the means of responses to questions 1 through 4 is 2.71 with a standard deviation of 0.82. This is equivalent to "Neither agree nor disagree" according to the

**Table 4: Descriptive statistics of information cues**

Q#	H1 Questions (Information Cues)	N	Mean	Std. Deviation
1	The number of reports produced by the AIS exceeds the management needs	64	2.91	1.05
2	The amount of details within the AIS reports are excessive	64	2.83	1.03
3	AIS produces excessive types of reports	64	3.03	1.01
4	Some of the figures produced by the AIS reports are unjustifiable	63	2.08	1.00
	Average		2.71	0.82

Likert scale used in this study. Since the average is less than 3, management exposure to excessive information cues could be considered to be somewhat weak<sup>9</sup>. However, we are not suggesting here that there is a total absence of information cues. Simply, the exposure to information cues is not an acute problem, and managers might be regarded as having the right information for decision making and decision taking purposes.

**Table 2: Allocations of questionnaire's questions in the third part**

No. of questions	Area measured
4 - 6	Information cues/cause
5 - 7	Time constraint/cause
8 - 10	Redundancy on information/cause
11 - 18	Quality of information/cause
19 - 24	Irrelevant information/cause
25 - 27	Efficiency of managerial decisions/effect
28 - 31	Effectiveness of managerial decisions/effect
32 - 33	Accuracy of managerial decisions/effect

be complementary to each other to yield one main variable( Litwin, 1995). The following table shows the value of Cronbach's Alpha for each set of questions and for the entire questions as a whole. As shown in table 3 the value of Cronbach's Alpha ranges from 0.768 for the information quality set of questions to 0.916 for the decision efficiency set of questions. Therefore, the internal consistency reliability of the measures used in this study can be considered to be good<sup>8</sup>

**Table 3: The value of Cronbach's Alpha for Questions of the Questionnaire**

Questions set	Number of Questions	Cronbach's Alpha
Information cues	4	0.818
Time constraint	3	0.814
Redundancy	3	0.827
Information quality	8	0.768
Irrelevant information	6	0.825
Decision efficiency	3	0.916
Decision effectiveness	4	0.811
Decision accuracy	2	0.773
All Questions	33	0.873

**4.6 Data Analysis Techniques**

Descriptive statistics, particularly measures of central tendency and dispersion, one-tailed t-test and two-tailed t-test were used in analyzing and testing hypotheses of the study.

For one-sample tests, a one-tailed t-test was used to test the hypotheses of the study. The existence of the sources of accounting information overload, and the effect of accounting information overload on the quality of managerial decisions, were tested using t statistics at a significance level ( $\alpha$ ) of 0.05.



well as the effect of information overload on the quality of managerial decisions. The questionnaire was reviewed by 13 referees and amended accordingly. However, referees were not asked to answer the questionnaire (i.e. they are not among the 64 respondents).

#### 4.4 The Questionnaire

Responses to the questions of the questionnaire were assessed using five point Likert scale (table 1) as follows:

**Table 1: Scale used for responses to questions of the questionnaire**

Scale	Points
Strongly Agree	5
Agree	4
Neither Agree Nor Disagree	3
Disagree	2
Strongly Disagree	1

The questionnaire is classified into three main parts. The first part contains questions about demographic variables: age, level of education, specialization, years of experience, training courses and the type of accounting information system being used in the organization (fully computerized, partially computerized or manual).

The second part contains questions pertaining to the main tasks that the respondent is mainly responsible for. These tasks are usually performed by managers using information provided by the accounting information system, being used in the company. Tables 1, 2 and 3 in Appendix B indicate the extent of the use of accounting information system in various managerial decisions. Figures in appendix B are arranged in a descending order, i.e. from the most heavily used accounting information system to the least used accounting information system for managerial decisions. Therefore respondents are aware of the level of accounting software employed. Table 1 relates to all individuals in the sample whereas Tables 2 and 3 relate respectively to tasks performed (decisions made) by managers using fully and partially computerized accounting information system.

The third part contains the main questions of the questionnaire. These questions pertain to the variables of the hypotheses of the study. The third part is classified into eight sets of questions (Table2).

#### 4.5. Reliability of the Instrument

In order to measure the internal consistency of the questionnaire, Cronbach's Alpha coefficient was calculated for the 33 questions. This coefficient measures the reliability for a set of two or more indicators/items constituting a group (Hair et. al,1992).As such, it represents an indication of the ability of various items to

### 3.3 About this study

This study is not concerned with whether managers can be overloaded or not. It is concerned with the question: are managers overloaded or not? The study highlights the existence of the accounting information overload phenomenon in the Jordanian market. This study assumes that accounting information overload could exist, and it tries to answer the question whether or not accounting information overload does exist in Jordan. Moreover, this study seems to be the first to investigate the phenomenon of accounting information overload in Jordan.

## 4. Study Design and Methodology

### 4.1 Data Collection

This study is based on two main sources of data. Primary sources, which constitute 64 questionnaires collected out of 80 questionnaires distributed. The other sources are secondary sources which are based on a comprehensive review of previous and recent studies conducted in the field of the research under investigation and any other related subjects.

### 4.2 Sample of the Study

The population of the study is financial managers of manufacturing companies in Jordan. Financial managers of manufacturing companies were chosen, rather than other industries, because they are confronted with a wide range of diverse managerial decisions. In other words, financial managers are heavy users of financial information and, consequently, more prone to accounting information overload than other managers working in other fields. However, even though the sample of the study is financial managers in particular, other managers, who were deemed to be heavy users of financial information, particularly accounting information, were questioned as well<sup>6</sup>. However, it is a limitation of this study that the size of the population (all financial managers in the Jordanian manufacturing companies) remains unknown, despite tremendous attempts carried out by the authors of this study to find out any reliable statistics.

The sample of the study consists of 64 financial managers chosen randomly from the entire population of the study. The population of the study consists of all financial managers working in manufacturing companies in Jordan.. However, the majority of companies in which financial managers are working are listed companies (60%) which represent 38 companies. (total listed manufacturing companies in Jordan is 89)..

Sixty four questionnaires were returned out of a total of eighty questionnaires disseminated to eighty different companies working in different industrial sectors in Jordan. In other words, eighty percent of the questionnaires disseminated were returned. Only four out of sixty companies received more than one questionnaire. The remaining companies received only a single questionnaire. The distribution and collection of questionnaires were conducted during 2005. The size of the companies under investigation ranges from big companies (over 100 employees) to small companies (less than 50 employees). However, the majority are big and medium in size (50-100 employees).

### 4.3 Instrument of the Study

The main instrument of this field study is the questionnaire<sup>7</sup>. The questionnaire was designed by researchers to test the existence of sources and symptoms of accounting information overload, as

- (1) the critical deficiency under which most managers operate is the lack of relevant information,
- (2) the manager needs the information he wants,
- (3) if a manager has the information he needs his decision making will improve,
- (4) better communication between managers improves organizational performance,
- (5) the manager does not have to understand how his information system works, only how to use it.

In his article, Ackoff suspects the validity of the above assumptions and suggests that much attention should be paid to eliminating irrelevant information rather than on ways to provide relevant information.

Jacoby et al.(1974) investigates buying decision behavior by means of an information display matrix. Independent variable is the total amount of information defined as the product of the number of new brands and the number of attributes per brand (items per brand \* number of brands). The dependent variable is decision efficiency, and it is operationalized as the convergence level of the actual brand chosen with an ideal brand. The result is that the increase in the total amount of information leads to an increase in decision efficiency. This is until a given number of information units are reached, after which decision efficiency starts to decline, due to information overload. Jacoby et al. conclude that customers make poorer decisions when given too much information. Consequently, the result of Jacoby et al. corroborates the inverted U-Shaped relationship between information load and decision quality provided by Schroder et al.(1967).

Hahn et al.(1992) supported the inverted U-shaped relationship between information load<sup>5</sup> and decision quality. However, their support is only under conditions of time pressure. Hahn et al. show that in the absence of time pressure, increasing information load results in increasing decision quality. However, under conditions of time pressure, decision quality first increases with information load and then decreases. Hahn et al. pointed out that people more involved in decisions (e.g. managers of concurrent engineering team) can use and process more information than less involved people.

Meyer et al. (1997) provide further contradictory results with a laboratory study in a group setting, where they find that information loads do affect decision quality but time pressure does not affect the quality of decisions. In their study, they try to find some evidence about how people perform under time pressure. People were engaged in a hypothetical "Winter Survival Exercise" in which their plane had crashed in a remote area. Participants rated the importance of fifteen items (e.g. steel wool, compass, and gun). Half the participants were given fifteen minutes and the other half were given thirty minutes. Results showed decision quality was not influenced by time pressure.

Buchanan and Kock (2000) used a sample of 108 MBA students and questionnaires as the main instrument of the study. The main objective of the study is to examine the perceived existence of information overload and its effect on decision making. The study tries to answer the following question: Are individual factors comparatively more or less important than task factors in influencing perceived information overload? The result of the study was that perceived information overload is significantly affected by both individuals and task factors. Approximately 60% of the reasons given for information overload relate to task factors; principally information and time pressure issues. The remaining 40% of reasons are attributable to individual factors, notably a lack of organizing skills and issues relating to the style (decision, management, cognitive) of decision maker.

Miller (1970) further developed Revsine's arguments, to examine their implications, and to demonstrate that accountants may have some notion of the complexity of the external reporting environment before they conduct rigorous empirical tests. Miller concludes that we can probably follow a data expansion policy now although we will eventually be limited. Continual haphazard expansion will inevitably cause superoptimality and reduction in the usefulness of financial reports for decision making.

Bradfield (1972) investigated the ability of decision makers to use aggregated versus disaggregated data in a simple decision making task. The results show that subjects receiving disaggregated data, performed slightly better than subjects receiving aggregated data. Furthermore, analysis of the study shows that subjects receiving disaggregated data offset a lesser ability to identify the best decision criterion with a greater degree of consistency.

Abdel-khalik (1973) using a sample of 600 commercial loan officers at all levels of administrative hierarchy in banks that was randomly selected from a list of 1,900 commercial loan officers, tried to investigate the effects of altering the information structure of accounting reports by aggregation on the quality of the lending decisions made by commercial banks to business firms. The sample was spread over 36 states and 330 independent banking units. The result of the study is that users of aggregated data performed rather poorly in the decision task required in this experiment. They also performed rather poorly on all the quality criteria, including the predictive ability of default.

Casey (1980) based on Schroder et al (1967) tries to determine whether the disclosure of increased amounts of accounting information improves decision making by the user or overloads the decision making process. One hundred and twenty two bank loan officers from 26 commercial banks in 14 states participated in the study. The research task required the officers, using one of three differently perceived information loads, to predict which of ten real life firms would declare bankruptcy within a subsequent three year period. The result of the study was as follows: officers with the heaviest information load had no greater predictive accuracy than officers with a lesser information load and used significantly more time to assimilate the data. These findings indicate the occurrence of accounting information overload.

Iselin (1988) in a laboratory experiment, examined unstructured decision making. Independent variables are information diversity, decision experience and task learning, with each categorized in two levels. The dependent variables of decision performance are operationalized by using two variables; profit and decision time. It was found that profit is not affected by information diversity, although decision time is. Decision experience and task learning affect both profit and time, as expected.

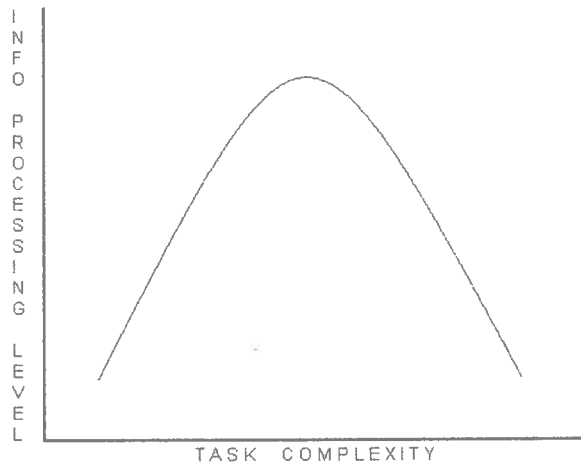
Chewning and Harrell (1990) via estimating a regression model for each subject at each cue level to measure cue usage at each information level. The results show that when cue usage is plotted against cue availability, approximately one-third of the subjects exhibited the information usage implied by the Schroder et al. (1967) model. Studies on the Effect of .

### **3.2 Information Overload in Other Fields of Business**

Ackoff (1967) tackled contended that there is far more information available than is needed, since most of the deficiencies arise in MIS's are due to the fact that designers of management information systems base their work on five unjustifiable assumptions. These assumptions are:

up to a threshold point. Above the threshold point, performance decreases sharply and leads to a breakdown of the information processing system. These tests were carried out for all sensory organs. The results show varying capacity levels for each sensory organ which fluctuates around a mean value of seven "chunks"<sup>21</sup>. Moreover, Miller investigated how behavior systems adapt to information surplus and lists the following mechanisms by which the information load is tackled, while at the same time reducing efficiency: 1) non processing 2) deficient processing 3) queuing 4) filtering 5) precision reduction 6) chunking 7) escape from the task.

Schroder et al.(1967) proposed a conceptual model of human information processing in which the level of information processing follows an inverted U-shaped curve, when plotted against the complexity of information environment<sup>3</sup>. This inverted U curve (figure 2) suggests that as the information environment becomes more complex, the level of information processing by the processing unit increases up to some maximum processing level. After this point, additional environmental complexity results in a lower level of information processing.



**Figure 2: Inverted-U Curve proposed by Schroder et al.**

### **3.1 Studies on the Effect of Accounting Information Overload**

Revsine (1970) presents the Schroder et. al.(1967) conclusion that prior to the attainment of maximum abstractness, an increase in environmental complexity<sup>4</sup> will increase abstractness. Beyond the maximum point, abstractness is decreased as the environment grows more complex. No matter how relevant the information that is added to the environment may be, if it is presented after maximum abstractness is reached, it will reduce conceptual structure and cause the decision-makers' model to grow more concrete.

amount of time available for such processing, resulting in degradation of decision quality (Hahn, et. al. ,1992; Peters et. al. 1984).

In this study, information overload will be operationalized subjectively by the managers themselves and objectively by its effect on the quality of managerial decisions. In our study, Information overload is operationalized by the following dimensions: 1) information cues 2) time constraints 3) redundant information 4) information quality 5) irrelevant information. Even though these factors are most commonly used to operationalize information overload, information overload has no existence if these factors do not adversely affect the behavior of the recipients who are the managers in our study. In our study, decision quality is the behavior criterion. In other words, the first five factors constitute sources of information overload. However, it is not necessary that managers are adversely affected by these sources. For example, managers could have developed techniques to cope up with excessive information burden, or some managers could have the skills to manage information overload without suffering the negative consequences of information overload. Therefore, information overload does not exist unless a manager's decision quality is adversely affected.

There are two reasons behind operationalizing information overload, in the way it is discussed above. First, this study is not lab-oriented; it is an empirical study, and the questionnaire is the main instrument of the study. Second, unlike experimental studies, decision task is not determined.

Our research study is based on the assumption that information overload is a byproduct of the use of computers in the organization. We believe that information overload could arise for a number of reasons. First, before the information technology revolution era, managers used to spend considerable portion of their time in preparing budgets, reports and many other decision related activities. Much more time used to be spent by managers in "number crunching" than in controlling and planning the organization. Nowadays, and due to the substantial development in computer processing techniques, managers need not bother themselves with number crunching. Computers can perform the task on their behalf with greater accuracy and speed.

Secondly, do managers receive what they need? Or shall they look for what they need from what they receive? Gattenio (2004) said at a financial executives' international business reporting conference: "the average company spends more than half its time trying to find the data it needs to analyze". Irrelevant information causes extra burdens on managers and prevents them from efficiently using their limited time. Consequently, irrelevant information can be considered as a source of information overload, which prevents managers from making effective and efficient decisions. The use of computers has increased the probability of receiving more irrelevant and redundant information.

To ensure that the use of computer holds the responsibility for accounting information overload, a comparison between two types of samples is made. The research study is designed to compare companies using computerized accounting information systems with those using non-computerized accounting information systems, in order to gauge the degree to which the use of computers is held responsible for accounting information overload, if at all.

### 3. Literature Review

Miller (1956) was the first to address the issue of information overload, when he concludes that human information processing performance increases linearly with increasing information input,

a mean value of seven "chunks" (Miller, 1965).

As shown above, information overload is by no means new. However the advent of information technology, such as books, magazines, journals and the computer, has increased the focus on information overload. Innovations in information technology increased the complaint that it is impossible to keep up with the amount of information available, and information overload is generally accepted as a problem.

Information technology is held to take the main responsibility for information overload due to its ability to produce and disseminate information more quickly than ever before. Computer use becomes inevitable in almost all organizations nowadays. Since the accounting information system is one of the most important information systems in every organization, the use of computers is prevalent.

The information overload problem in organizations, is dealt with from a behavioral science viewpoint by Simon (1957), Nowell and Simon (1972), Miller (1956), and other researchers. Despite criticism of the information overload hypothesis and its effect on individuals' behavior, including decision making, it seems that the existence of information threshold was accepted by the majority. In other words, decision efficiency increases as the amount of an information increases until it reaches a maximum (threshold) from which point it falls rapidly.

Lucas and Nielsen (1980) suggest the following reasons for the dysfunctional effects of the supply of additional amounts of information:

- 1) the limited capacity of the decision maker leads to information being stored and supervised instead of processing this information, based on the problem in hand
- 2) additional information distracts from central key information
- 3) increasing knowledge redundancy

The terms information supply and information demand as well as information overload are operationalized at different levels in various studies. Information supply and demand are operationalized on the basis of formal quantitative data (number of information items) for a large number of people or information sources. However, operationalizing information overload seems to be even more controversial. Operationalizing information overload, as the excess of information supply over information demand, has faced critics. It has been argued that the excess of information supply compared to information demand might not necessarily imply an overload because: 1) the supply must initially reach the demandee in its entirety, which is unrealistic; and 2) an overload comes into effect if, despite information reduction and information selection mechanisms, the load exceeds physiological limits (Hagge, 1994).

Therefore, information overload must be operationalized on the basis of individual behavior in a give situation (Meyer, 1998).

In fact, information overload has been operationalized in different ways: the amount of information (e.g., number of cues) (Casey, 1980; O'Reilly, 1980); number of alternative outcomes (Shields, 1980; Stewart, 1988); and overall diversity of the information (Iselin, 1988). The number of information cues is the most commonly cited determinant of information overload (Evaristo et al., 1995). Hart (1986) indicated that an increase in task demands (i.e., task complexity) directly influences mental workload and can lead to information overload. More recent research has articulated the importance of time in understanding information overload (Schick et. al., 1990), suggesting that information overload occurs when the time required to meet a decision maker's processing requirements exceeds the

### 1.5.2 Hypotheses for Two Sample Test

- H1: There are no differences between the number of reports produced by fully computerized accounting information systems and those produced by partially computerized accounting information systems.
- H2: There are no differences between the ability of managers to handle all information received from fully computerized accounting information systems than those received from partially computerized accounting information systems because of time constraints.
- H3: There are no differences between the amounts of redundant information produced by fully computerized accounting information systems and those produced by partially computerized accounting information systems.
- H4: There is no differences between the quality of information produced by fully computerized accounting information systems and that produced by partially computerized accounting information systems.
- H5: There are differences between the amounts of irrelevant information produced by fully computerized accounting information systems and those produced by partially computerized accounting information systems.
- H6: There are no differences between the adverse effects of accounting information overload, from fully computerized accounting information systems and partially computerized accounting information systems, on the quality of managerial decisions.
- H6a: There are differences between the adverse effects of accounting information overload, from fully computerized accounting information systems and partially computerized accounting information systems, on the efficiency of managerial decisions.
- H6b: There are no differences between the adverse effects of accounting information overload, from fully computerized accounting information systems and partially computerized accounting information systems, on the effectiveness of managerial decisions.
- H6c: There are no differences between the adverse effects of accounting information overload, from fully computerized accounting information systems and partially computerized accounting information systems, on the accuracy of managerial decisions.

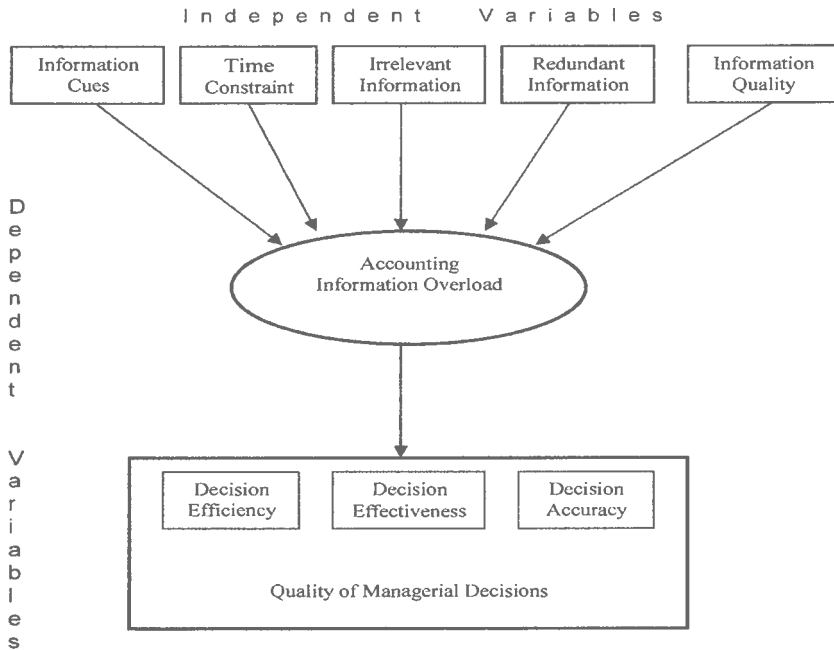
## 2. Theoretical Framework

### 2.1 Information overload

The term information overload is usually taken to represent a state of affairs where an individual's efficiency in using information in their work, is hampered by the amount of relevant and potentially useful information available to them. In other words, information overload occurs when information received becomes a hindrance rather than a help, when the information is potentially useful (Bawden et. al., 1999).

The information overload hypothesis was first introduced by Miller (1956). He concluded that human information processing performance increased linearly with increasing information input up to a threshold point. Above the threshold point, performance decreases sharply and leads to a breakdown of the information processing system. These tests were carried out for all sensory organs. The results showed varying capacity levels for each sensory organ which fluctuated around





**Figure 1: The relationship between independent variables and dependent variables**

### 1.5 Hypotheses of the Study

In order to achieve objectives of the study, the following hypotheses will be tested:

#### 1.5.1 Hypotheses for One Sample Test

- H1: A large number of reports are received by managers which make them prone to accounting information overload
- H2: Managers cannot handle all the information they receive from the accounting information systems because of time constraints.
- H3: Much of the information produced by accounting information systems is redundant
- H4: Information produced by accounting information systems is of poor quality
- H5: Accounting information systems produce much irrelevant information
- H6: Accounting information overload has an adverse effect on the quality of managerial decisions
- H6a: Accounting information overload has an adverse effect on the efficiency of managerial decisions
- H6b: Accounting information overload has an adverse effect on the effectiveness of managerial decisions
- H6c: Accounting information overload has an adverse effect on the accuracy of managerial decisions

### 1.3 Objectives of the Study

The study aims mainly to:

- 1) Verify whether managers are experiencing accounting information overload.
- 2) Investigate the effect of accounting information overload on the quality of management decisions.
- 3) Investigate whether the use of computers in organizations bears any responsibility for overloading managers with accounting information.

### 1.4 Importance of the Study

This field study aims mainly to highlight major causes of information overload in the field of accounting. By identifying causes of accounting information overload, the study will help by suggesting solutions to reduce or even eliminate accounting information overload. Figure 1 below shows the relationship between independent variables and dependent variables of the study. Five causes are suggested: 1- A higher level of information cues causes a higher level of information overload. 2- The greater the time constraint, the higher the level of information overload. 3- The more irrelevant information, the higher the information overload. 4- The more redundant information, the higher the level of information overload. 5- Less information quality causes more information overload. In turn, a higher level of information overload adversely affects decision effectiveness, decision efficiency and decision accuracy.

Of course, there are other possible causes not considered by the current study. Among the other possible causes are quality of the data base used, management interest in and awareness of information overload, the level of qualifications of employees dealing with accounting information systems, the level of internal control efficiency and effectiveness and adequate integration between accounting information systems and other information systems in an organization. However, these causes are not taken into consideration in the current study because

we prefer to investigate those causes that have direct impact on information overload. The other possible causes could be regarded as secondary in importance and to consider them in the current study may create confusion and unnecessary detraction from the causes chosen.

## 1. Introduction

### 1.1 Preface

In April 1997, CNN wrote: "there is so much data out there, on television, in books, on billboards, in magazines and newspapers and on the internet that it's making some people physically ill, according to some experts". Psychologists even have a name for the phenomenon: Information Fatigue Syndromes.

Accounting is not an exception. In fact, information overload is not a new issue in the accounting literature. External users of accounting reports have been suffering from excessive information, resulting from the ever increasing disclosure requirements of the regulatory agencies, like the Securities and Exchange Commission (SEC) in the United States (Balkaoui, 2004). Nowadays and because of the massive development in information technology, there is widespread belief that too much information has an adverse effect on decisions for both internal and external purposes.

Information provided by accounting information systems, falls into two main categories: financial statements and managerial reports. The accounting information system is intended to provide management with information of both categories, for effective decision making. However, this study focuses mainly on information produced for internal use within the organization itself.

Excessive outputs result from the information technology revolution. The huge increase in the level of outputs has induced many researchers to study the potential adverse effects of information overload over several aspects of human behavior. In fact, there is a widespread acceptance that due to this massive revolution in information technology, internal users, mainly managers, are overloaded with information. Therefore, effective and efficient managerial decisions could be compromised.

### 1.2 Problem of the Study

There are two main issues which constitute the core subject of the research: first, before the information technology revolution, managers used to spend considerable amount of time in preparing budgets, reports and many other decision related activities. Much more time used to be spent by managers in "number crunching" than in controlling and planning the organization. Nowadays, and due to development in computer processing techniques, managers can spend much less time on actual conclusion. Computers can perform the task on their behalf with greater accuracy and speed. The substantial development in computer processing speed has provided managers with large amounts of information. Under time constraint and limited human information processing, excessive information could seriously hinder the decision making process, and prevent managers from making effective and efficient decisions. Secondly, do managers receive what they need? Or shall they look for what they need from what they receive? Gattenio (2004, P.4) said at a financial executives' international business reporting conference: "the average company spends more than half its time trying to find the data it needs to analyze". Even though this issue is better addressed to the effectiveness of the accounting information system itself, irrelevant information adds an extra burden on managers and prevents them from efficiently using their limited time. Similarly, redundant information, as well as information of poor quality might be considered sources of information overload which prevents managers from making effective and efficient decisions.

## أثر عبء المعلومات المحاسبية على نوعية القرارات الإدارية: (دراسة ميدانية)

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### ملخص

في الوقت الذي يهدد فيه عبء المعلومات ليس فقط الحياة الاجتماعية وإنما الحالة الصحية لكثير من العاملين في مختلف المهن وبالذات مدراء الشركات في البلدان المتقدمة، نجد أن ظاهرة عبء المعلومات المحاسبية ليس لها من وجود حسب رأي مدراء الشركات الصناعية في الأردن، ففي ضوء استجابة المدراء الماليين في 64 شركة صناعية لاستبانة تتعلق بمدى تأثير ارتال المعلومات المحاسبية ومحددة الوقت والمعلومات المحاسبية الزائدة عن الحاجة والمعلومات المحاسبية ضعيفة النوعية والمعلومات المحاسبية غير الملائمة كمصادر أو مسببات لعبء المعلومات المحاسبية، لم نجد أي اثر لهذه المصادر على عبء المعلومات المحاسبية. والنتيجة ليس هناك من وجود لظاهرة عبء المعلومات المحاسبية لدى مدراء الشركات الصناعية الأردنية. إن نتيجة اختبار اثر عبء المعلومات المحاسبية على نوعية القرارات الإدارية منجسمة مع غياب عبء المعلومات المحاسبية وبالتالي فهي تؤكد غياب أثر أي مصدر لعبء المعلومات المحاسبية لم يختبر في هذه الدراسة. باختصار ليس لعبء المعلومات المحاسبية من أثر سلبي على نوعية القرارات الإدارية. وأخيراً، فإن الدراسة تشير إلى أن استخدام الكمبيوتر لا يتحمل أي مسؤولية عن عبء المعلومات الذي يتعرض له المدراء. ولأجل التوصل إلى نتيجة من هذا النوع فإن عينة الدراسة قد صنفت إلى مجموعتين: أنظمة معلومات محاسبية محوسبة بالكامل وأنظمة معلومات محاسبية محوسبة جزئياً. إن نتيجة اختبار تشير إلى عدم وجود فروق ذات دلالة إحصائية بين المجموعتين.

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## **The Effect of Accounting Information Overload on the Quality of Managerial Decisions (A Field Study)**

**Prof. Riyadh Al-Abdullah \***

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### **Abstract**

At the time information overload is threatening not only social life, but also the health of many professionals, especially managers in businesses in developed countries, the phenomenon of accounting information overload seems to have no existence among managers working in manufacturing companies in Jordan. Financial Managers of almost 64 manufacturing companies were the respondents of the study. Information cues, time constraint, redundancy of information, poor information quality and irrelevant information are five sources of accounting information overload tested in the study. The result is that none of these sources exist. Consequently, accounting information overload has no existence in Jordanian manufacturing companies. The result of testing the effect of accounting information overload on the quality of managerial decisions is consistent with the finding of the absence of accounting information overload and it assures the absence of any other sources of accounting information overload not tested in the study. Briefly, accounting information overload has no adverse effect on the quality of managerial decisions. Finally, the study indicates that the use of computers bears no responsibility for overloading managers with information. In order to reach this finding, the sample was divided into two groups; companies using fully computerized accounting information systems and companies using partially computerized accounting information systems. The result of t statistics shows no statistically significant differences between the two groups.

**Key words:** Accounting Information System, Fully Computerized Accounting Information System, Partially Computerized Accounting Information System, Information Overload, Information Cues, Irrelevant Information, Time Constraint, Redundant Information, Quality of Managerial Decisions

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