



RAPID BI PTY LTD
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Melbourne VIC 3000



[COMPANY NAME]
SISENSE SYSTEM ASSESSMENT

March 2021

EXECUTIVE SUMMARY

RAPID BI has evaluated the existing Sisense installation, and we confirm that it is technically sound, but that progress has been slow, and there is much unrealised value. There are 15 working dashboards, and the number of non-working dashboards and unused cubes is high. Our checklist has shown that many of the dashboards and cubes are test versions that no longer work.

There are some immediate issues:

- 1) Large data tables are being processed slowly and we will look at accumulation builds to improve performance.
- 2) When drilling down to dashboards we need to ensure filters are being set correctly.
- 3) When clicking from a BloX widget, parameters for date and other fields needs to be added to the URL. RAPID BI can implement a Blox custom action to address this.
- 4) The existing Sales report needs to be re-implemented using Sisense with clickable link into the software system and formatted similarly to the existing on-screen report. RAPID BI has implemented with other clients and will do similar in this case.

As well as BI reporting, there is value within the combined customer database, assuming the customer T&C allow its use. Every invoice item is a useful piece of information. This data may also be available for secondary uses such as monetising with suppliers, and benchmarking of customers' operations.

The Company are in an excellent position to make BI and this Sisense installation a real competitive advantage. Especially as it is currently a unique selling point, and a focus on making rapid progress towards a working and more expansive offering will hopefully re-invigorate the project.

There are 3 broad areas for resourcing, planning and prioritisation.

- Deliver all the original dashboards as specified.
- Polish dashboards to deliver useful data and unified look/feel with existing software.
- New features - multi-site, monetisation.

A full analysis is within this document along with a **recommendations section**. **These need to be prioritised and resources allocated** accordingly.



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BACKGROUND

The company produces software for [specific business here], this is delivered using SAAS and is hosted on AWS. In Australia the current user base is 1234 with approximately 10 active sign ups per week. The company has contracted RAPID BI to provide an assessment of the current implementation, this document, and has also signed up for a professional membership, which gives you access to most of our Sisense tooling and 10 hours of professional services each month. Sisense has been integrated into The Company to deliver customer value. It provides a unique selling point for prospective customers, and it's available as part of the top tier membership, encouraging upsell for existing customers.

The Company Sisense project started in early 2020, and to date has delivered a small number of production dashboards, from an initial set of 25 which were designed. These dashboards are all served from the same cube which is having performance issues with not reading all the available data.

As progress to date has been slow, a 'project reset' will be useful where a set of priorities and achievable delivery dates can be set. As it has only recently gone live, there is a good opportunity to capture feedback and get things changing and improving on at least a weekly basis, which will impress and entice customers.

There are 2 immediate issues,

- jump to application needs correct URLs
- clickable links in the Sales report dashboard

these issues can be solved immediately. There after we have options such as

- new dashboards
- tuning of existing dashboards
- security for multiple levels of users - managers, sales, accounts etc
- multi-site development

Now that the single main cube has been developed and is building regularly without issue, there is a great opportunity to build and deliver further useful and valuable customer dashboards. There is a push to create operational dashboards, showing information such as accounts overdue, or incorrectly entered data. These are both good candidates for development and will be sticky and useful on a daily basis with customers.

The dashboard functionality is mainly derived from existing reports and modules in the Company system. The dashboards are clearly laid out with important metrics to the top, implemented using Blox, and these act as navigators back to the Company system.

The Company requires a Sisense Partner to help manage, develop and support their Sisense installation. Our engagement includes 10 hours of professional services each month. However, there is a large amount of work to be done, which will far exceed that 10 hour allocation, therefore an important next step is to decide on priorities and how the work will be split between RAPID BI and The Company's staff.



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SECURITY, ACCESS AND FILTERING

Groups have been created which map to each Company's client. Each group has its own unique client id and that is used to limit access to their specific data using row level security. This approach is working well but needs to be extended to support granular access to data within each organisation. For instance a manager/owner should be able to see all data, a salesman may only be able to see their own information or data pertinent to the site itself, a user from accounts may have a different view again. That can be implemented by creating groups for managers, sales etc and then creating and sharing specific dashboards for those groups. So each system user will have a 'Company Group' for row level security and a 'Role Group' for dashboard access.

MULTI BRANCH

Multi-site usage is also important. The biggest customer runs multiple sites and requires an approach similar to that of a company as explained previously, and also a whole of group security and dashboard setup where information from all the sites/companies in the group can be consolidated and reported on. We need to understand how Company Ids are allocated to a group, but assuming each branch is its own company then a set of Ids can be allocated to the top Group using row level security

As manual security updates can be arduous or error prone, they can be managed via the RestAPI. Individual branches will have their own group as currently setup. This approach would also work for geographic territories or other groupings.

FILTERING

Filtering has hardly been used in the dashboards and that's unusual in our experience. Filters will typically be used for date ranges, product or customer types, to display top 10 lists and so on. It's typically a fundamental part of a Sisense dashboard. In addition, filtering can be used instead of, or in conjunction with security to limit data being displayed. For instance, a filter can be used to limit what data is being displayed in a dashboard, a filter can be locked so a user cannot change what they're seeing and it can also be hidden so they are unaware that they are only looking at partial data.

UNIVERSAL USERS FOR TESTING

I have created a user on your system [user@user.com] and shared a few test dashboards with that user. As there is no row based security for that user so I have access to all companies. That approach is very useful for looking at all your data and/or a specific companies' dashboards. I'd suggest creating an internal group with these 'universal users' for use by The Company development and support staff.

DASHBOARDS AND USAGE

The overview dashboard follows good practise with key indicators at the top, with charts show more information below. Each of the initial dashboards shows a variety of information but it's not clear what problems the dashboards are solving. It seems likely they've been developed as a collection of data that relates to the subject of the dashboard but not with a specific user and task in mind. Thinking along the lines of 'I am a ? and I will use this KPI/Number/Chart so that I can then do this ? task' is a useful way of starting and reviewing a design. We can provide a Dashboard planning template and go through this with you / your clients.



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DASHBOARD DESIGN PROCESS

It would be useful to engage with users to see what they need and what they like or dislike about the current approach and dashboards. This process is iterative and requires close engagement with key users and business stakeholders. Your BI Champion has indicated that you're already receiving feedback from users, adding the comments plugin will enable your users to enter their thoughts direct into the dashboards.

I'm also assuming you have a mechanism to capture and triage feature requests for your software, and that can also be leveraged for BI. For instance, a manager has challenges such as ensuring the stock of parts is adequate and also staff are rostered correctly, and those important needs do not appear to be served by the current dashboards? Another key aspect of good dashboard design is to increase the amount of 'data ink' eg show as much useful information as possible and remove that which isn't needed.

Filters have been covered in the previous section, but they are also very important for users so they can control what they're looking at in each dashboard. The creation of filters is easy within Sisense and they can be turned on/off for testing purposes. RAPID BI offers 'in page' filtering via our library of Blox widgets.

CURRENT DESIGN

The visual design and palette of the dashboards uses the standard Sisense look and feel. As The Company Software system has its own style which is different, we recommend restyling the dashboards so there is clear and consistent visual approach. This re-branding exercise can also use the Sisense 'white labelling' feature where text and logos can be changed to match the Company requirements.

We also performed a quick review with Cara our Graphic Designer. She saw the dashboards as a bit overwhelming, they could benefit from better use of spacing and margins. Setting headings to be clearer, adding icons to aid comprehension, using a consistent palette, making the data stand out, especially important numbers that are out of range.

All customers would like their dashboards to pop, to have a wow factor that supports sales and is attractive for users. We have experience implementing this for previous and existing clients and can offer features such as our 'Sparkline Blox indicator' and InPage filters and buttons to improve the dashboard effectiveness.

USAGE

Dashboard usage was seen as high, with over 100 individual users from 50 clients. The goal is to have 400-500 active users, and as the BI functionality still has plenty of unrealised potential that seems well within reach.

Further analysis can be undertaken to look at busy times during the day or how users engage - throughout the day or at specific times.



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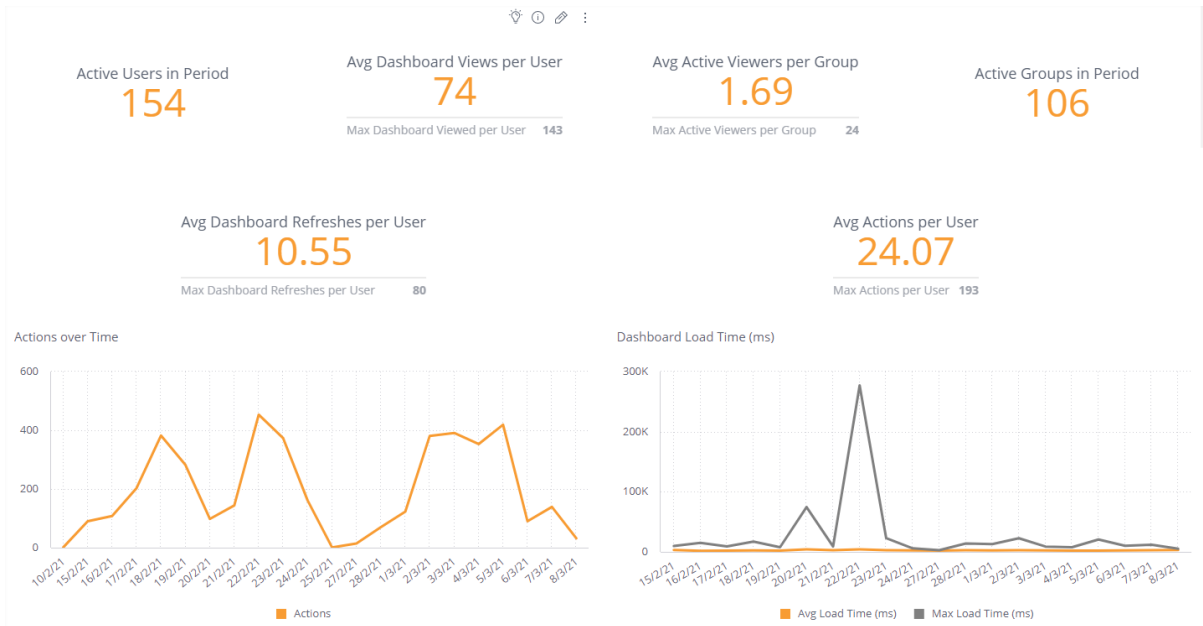


Figure 1 - The Sisense Usage Dashboard

SERVER/INFRASTRUCTURE

The system is hosted on AWS Linux and is managed by Company. It's configured with 16 cores and 127G of memory. Looking at the built-in Grafana charts we can see that memory and CPU usage are well within these limits. Memory usage shows 80G of memory, (the yellow block in the second chart) being used to run a query on Monday 1st March, but that heavy usage has not been repeated. There is currently no build or query load information available, and this will be addressed by using Sisense Monitor, which we have request to be setup.



Figure 2 CPU and Memory usage from the Sisense system

It is not clear whether backups of the Mongo DB are being taken. This is highly recommended as all user, group, dashboard, etc settings are stored here. RAPID BI has setup backup of cubes and dashboards through our version control process, but if there is a disaster recovery situation then



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this Mongo backup is essential. Instructions on what to do are here - <https://documentation.sisense.com/latest/linux/backstorelin.htm>

DATA SOURCES AND CUBES

- The data source for the single main cube is a Postgres database, there is a single database for all of Company’s client customers.
- A single Excel table is used for dates, and this is the standard Sisense dates table

Getting reliable connections to data sources and ensuring the cubes are easy to update is crucial, especially when the business relies on dashboards for decision making.

CUBES

The structure of the cube has been analysed using Rapid BI tools, which enables us to understand their underlying data and also how the fields are being used by Dashboards. The diagram below shows the main tables and their rowcounts, further sheets in the excel workbook, will show the column details.

Cubename	Metric	Value				
Profit Report	Build Time	0:00:32				
	Table Count	24				
	Custom	8				
	SourceData	16				
	Column Count	381				
	Custom	11				
	SourceData	299				
	Hidden	71				

SisenseTable	SourceTable	Type	Visible	Size	Source Type	SourceDetail
z Cust filter	New Custom Table	custom	TRUE	3491	custom	
Z. Item Filter 1	Z. Item Filter	custom	TRUE	6476	custom	
z Cat Manager Filter	9d6512ce-2208-4215-a350-13ab8fdc3e7a.csv	base	TRUE	69	CSV	/opt/sisense/storage/datasets/storage/9d/9d6512ce-2208-4215-a350-13ab8fdc3e7a.csv
z BU filter	Department	base	TRUE	81	GenericJDBC	NetSuite
z Day Period table	4dc31ab6-1bb4-4a16-b151-24af9f0ca04e.csv	base	TRUE	1461	CSV	/opt/sisense/storage/datasets/storage/4d/4dc31ab6-1bb4-4a16-b151-24af9f0ca04e.csv
z Subsidiary filter	Subsidiary	base	TRUE	28	GenericJDBC	NetSuite
Budget.Data	909effdc-bf51-4b21-a55a-33ad8f2fc7e.csv	base	TRUE	24908	CSV	/opt/sisense/storage/datasets/storage/90/909effdc-bf51-4b21-a55a-33ad8f2fc7e.csv
A.This Period	tq_SOUdUO3Yy	base	FALSE	81714	GenericJDBC	NetSuite
Z customer List	tq_1bp7MwKkG	base	FALSE	3490	GenericJDBC	NetSuite
Z.State Filter	926fc73e-c141-43ad-8c43-1d7f2e166ea7.csv	base	TRUE	9303	CSV	/opt/sisense/storage/datasets/storage/92/926fc73e-c141-43ad-8c43-1d7f2e166ea7.csv
LotNumberedInventoryItem	tq_oFLV48tNe	base	FALSE	5178	GenericJDBC	NetSuite
LotNumberedAssemblyItem 1	tq_LEQyQoSXL	base	FALSE	1299	GenericJDBC	NetSuite
A. This FY	New Custom Table	custom	TRUE	818190	custom	
Z Cat Filter	Classification	base	TRUE	311	GenericJDBC	NetSuite
Last FY	This FY csv	base	TRUE	572088	EC2EC	This Financial Year

Figure 3 Example Cube Data Dictionary

The cube has been designed following best practise from Sisense. There is a good split of Fact and Dimension (Filter) tables. In addition work has been put in to exclude over 200 fields that aren’t required and this will reduce the size of the cube and improve load and build times. There are around 300 fields available in the cube, and of those only 57 are being used. This is likely due to the small number of dashboards.

INTERNATIONALISATION

Sisense stores dates internally using UTC, which is London time without summer time applied. Some of the cube tables have fields for UTC and Local DateTime - notably LabourItems and EventTimes. This approach will work well, but may need to be investigated further when looking at multi-branch which is split across multiple timezones.

The display format used will be chosen from the browser, this works well in most situations. However, when loading CSV data there are sometimes date issues which require further processing once the file has been loaded.



For multiple currency requirements, Sisense will use the local browser setting to chose the symbol such as \$, £ That can also be overridden so a dashboard can show a different currency if required.

PERFORMANCE

Performance of builds is good with the Main cube taking 5:00 minutes to build. This includes the largest transaction table, with 5M rows, which takes 4:29 to build on it's own. We cannot currently review dashboard and query performance as Sisense Monitor isn't turned on, however, anecdotally through personal use the dashboards serve quickly enough for normal purposes.

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RECOMMENDATIONS

Immediate Recommendations

- Remove customer access to dashboards that don't work.
- Fix the 'jump to application' links in Blox and Pivots.

Recommendations in italics are seen as priorities

Performance Recommendation

- *Setup Sisense Monitor to track builds, dashboard query performance, and any errors.*
- Turn on dashboard usage cube and dashboards - COMPLETE.

Data Recommendations

- Use Version Control on Dashboards and cube files to ensure changes aren't lost - COMPLETE.
- Add Date as int fields to support min and max date analysis - useful for tracking when a customers engagement started, or when they stopped using the system

Cube Recommendations

- Implement accumulate builds, which can be achieved using views splitting historic and new data.

Design considerations

- Review KPIs and dashboards - good KPIs and dashboards will enable the user to 'now do something'.
- Look for easy to implement operational dashboards, such as 'invoices overdue.

Dashboard Recommendations

- Create a simple process with, development, test and promotion to production, for instance use folders to keep production, development and other groupings of dashboards separate.
- Complete the full set of dashboards as defined in [Document Here] if still relevant.
- Define dashboards for different levels of user Manager, Sales etc
- Create data test dashboards to be used by The Company to identify incorrect data, these can also be used by customers to ensure correct data entry.
- Add branding and colour scheme to match the existing software.
- *Implement group level and individual branch dashboards for multi-site clients.*
- *Create a 'universal user' that can access all companies and dashboards and use that for testing and investigation purposes.*
- Add customer comments functionality <https://www.sisense.com/marketplace/comments/> to dashboards to capture feedback. This is a free widget.
- Create data extract dashboards for close integration with Excel and other external tools.

Security Recommendations

- *Implement levels of access within each company, making use of Groups such as Managers, Sales, Accounts etc to restrict access to specific dashboards.*
- *Implement group level and individual branch security.*

Governance Recommendations

- Create a data dictionary to show cubes, relationships and field details - COMPLETE.



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- Create data checking dashboards to ensure the quality of data and make it easy to identify and fix any issues

Business Recommendations

- Clarify who is the BI sponsor
- Assign a product champion to be a focal point at The Company
- Investigate monetising data through benchmarking - an initial feasibility analysis using statistical tools and our experience would take 3-5 days. Metrics like dollar/hour, time spent/product can be derived and compared. We have a standard approach based on creating an index of multiple measures combined with weights for each, and identification of peers/exemplars for benchmarking comparison purposes.
- Investigate the import of historical data from other software suppliers to act as a gateway to migrating customers to your platform and also to extend the benchmarking functionality.
- Adding data from other sources, such as pricelists, accounting packages, email lists etc
- Investigate secondary market opportunities, such as selling (Summarised?) data or providing dashboards to product suppliers, magazines/media, professional bodies within your industries.
- Investigate opportunities for joint development where large customers will partly or fully fund development of dashboards, system integrations or other bespoke BI needs. For example, [Large Customer] may cover the cost for some bespoke BI development due to their size and potentially different BI needs.
- Determine whether the BI delivery team will be predominantly RAPID BI or whether internal resources will be delivering dashboards etc. Membership will allow us to make slow progress towards all this (10 hours per month), however this alone may not be sufficient to realise full value from the system.



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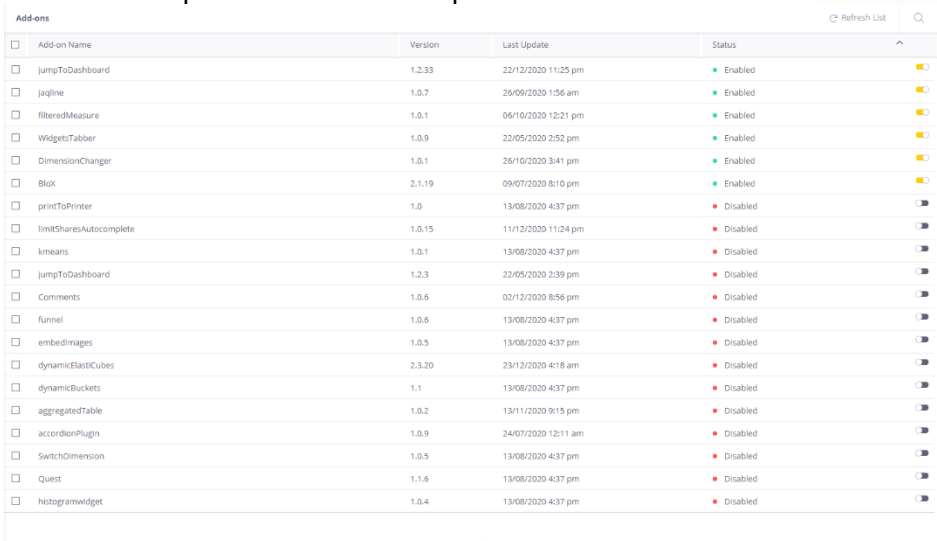


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Appendix A - Initial Checklist

<ul style="list-style-type: none"> • Site 	https://bi.yourcompany.com.au/
<ul style="list-style-type: none"> • Date Format set Australia 	https://bi.yourcompany.com.au/api/v1/settings/globalization set to en-US and autoDetectEnabled set true, this needs to be reviewed especially in light of local datetimes and UTC datetimes being set in the cube
<ul style="list-style-type: none"> • Version of Sisense 	100 viewer/10 designer/2 admin - license expires 1/7/2021. Version - Version: L8.2.6_SP3.31 – Running on AWS managed by Your Company
<ul style="list-style-type: none"> • Cubes referenced by Dashboards actually exist 	Sales, Products and Reseller cubes are missing - 1 dashboard/cube DashboardTest is on the server but not built - 17 dashboards would use this
<ul style="list-style-type: none"> • Dashboards will serve 	Only 7 of 30 dashboards are working - mainly due to missing or unbuilt cubes
<ul style="list-style-type: none"> • Cubes being used 	Of 11 cubes, only 2 Main and Usage are being used
<ul style="list-style-type: none"> • Orphaned fields 	WIP
<ul style="list-style-type: none"> • Backups being run 	Further investigation needed - suspect not
<ul style="list-style-type: none"> • Data Dictionary 	Complete for Main cube
<ul style="list-style-type: none"> • License Email 	Set to sisense@yourcompany.com - need to ensure the password for this user is known
<ul style="list-style-type: none"> • Users have access to the right cubes 	Yes via groups for each customer
<ul style="list-style-type: none"> • Dashboards 	37 in all - some new ones created as part of this review and 6 Usage dashboards as well
<ul style="list-style-type: none"> • Cubes 	25 with 427 tables
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ Circular references 	None
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ Data duplication 	This isn't an issue as there's only a single cube being used
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ EC2EC 	This isn't an issue as there's only a single cube being used
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ Fields are being used - use of invisible/hide 	WIP
Plugins	



	<p>21 plugins are installed but only 6 are enabled - the important plugins such as Blox and Jaqline are enabled as expected.</p>  <p>Page 1 of 2 21 Add-ons Total</p>
Monitor	Request made to Sisense to turn on Sisense
<ul style="list-style-type: none"> • Long running Queries 	See above
<ul style="list-style-type: none"> • Cube builds 	See above



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