windward studios

Equity Research

INVESTAX

Equity research
Financial services
US Small-Caps Banks
20 August 2019

Buy the Near term EPS Dip; Initiate at Overweight

$130.20 ^ 2.90

Skepticism around INVSTX is gradually fading as it executes on its goals. Following its early 2008 IPO, the market questioned how a company established through the purchase of a failed Florida thrift in 2007 would develop into a premier, regional bank. However, we think its experienced management team led by renowned banker, CEO John Doe, is delivering on this objective ahead of plan.

We view its pending EPS trough as a buying opportunity. INVSTX faces EPS pressure in 1H15 from its high-yielding FDIC-covered loans running off, but this headwind should moderate as its new loans continue to grow. Importantly, the interest income contribution from its new loans exceeded that of its covered loans for the first time in 4Q14. We look for a 2H15 EPS rebound to keep its 2015 EPS stable with 2014.

Beyond its tale of two EPS halves in 2015, there are several reasons to own INVSTX. We are attracted to its positioning in two of the East Coast's most vibrant markets (New Jersey and New York City), industry leading loan growth (CAGR of 44% from 2008-2016), management team's track record for creating shareholder value, and prospects for participating in industry consolidation.

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Stock Rating	OVERWEIGHT From N/A
Industry View	NEUTRAL Unchanged
Price Target	USD 179.20 From N/A

Price	USD 29.5
Potential Upside/Downside	+12%
Tickers	INVSTX

Market Cap (USD mn)	2995
Shares Outstanding	104.67
Free Float (%)	98.45
52 Wk Avg Daily Volume	.7
Dividend Yield	2.4
Return on Equity TTM (%)	9.87
Current BVPS (USD)	21.2

Price Performance	NYSE
52 Week range	USD 111-140

2014	2015	2016	Change y/y	
FY Dec	Actual	Old	New	Cons
Q1	.53A	N/A	N/A	.56E
Q2	.46A	N/A	N/A	.60E
Q3	.51A	N/A	N/A	.65E
Q4	.45A	N/A	N/A	.68E
Year	1.95A	N/A	2.3E	2.41E
P/E	15.1		12.8	

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A Guide to Evaluating Document Automation & Document Generation Products

White Paper | June 2020

INTRODUCTION

This guide will walk you through how to determine which document automation or document generation product is best for you. No one product, not even ours, is best for all use cases.

This guide only discusses the template design component. While just a part of any solution, template design generally the most important part as it's where the lion's share of users' time will be spent and limitations in this restrict the types of documents that can be created.

DEFINITIONS

Document Automation (also known as document assembly) is the design of systems and workflows that assist in the creation of electronic documents. These include logic-based systems that use segments of pre-existing text and/or data to assemble a new document.

Document Generation is the process of creating hundreds, thousands, or even millions of personalized and distinct documents for internal or external use from a single template. While Document Generation is a subset of Document Automation, for some products (not all) you can't get just the Document Generation component of a Document Automation solution.

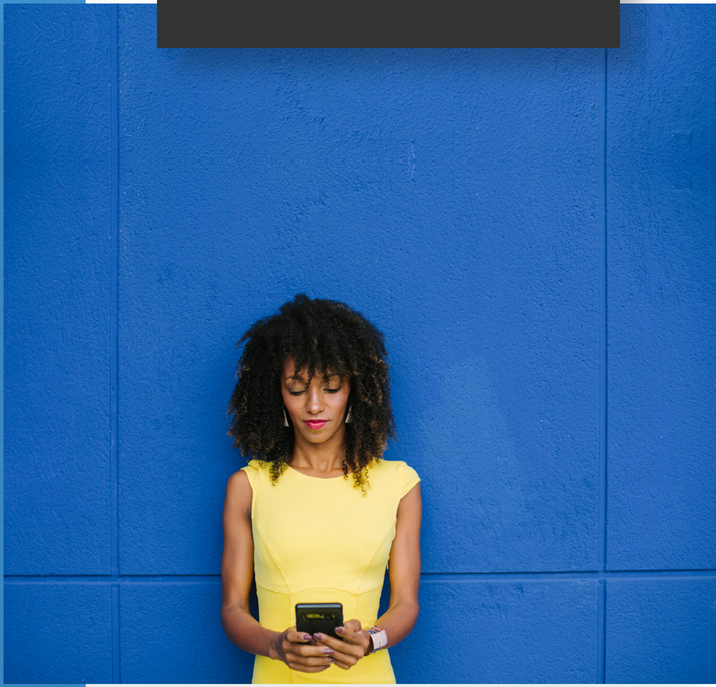
Reporting Software is a subset of Document Generation. Reporting software can't do documents. But Document Generation software easily creates reports.

Going forward, the word docgen will be used to stand for Document Automation & Document Generation in this guide. When something is Document Automation only, the word docauto will be used.

Tags are elements placed in the template (DOCX, PPTX, XLSX) that the docgen system acts on when generating a document. These tags can be data to insert, business logic rules to conditionally display or suppress content, and much more. Each vendor has their own term for "tags."

NOTE:

Going forward, the word **docgen** will be used to stand for Document Automation & Document Generation in this guide. When something is Document Automation only, the word **docauto** will be used.

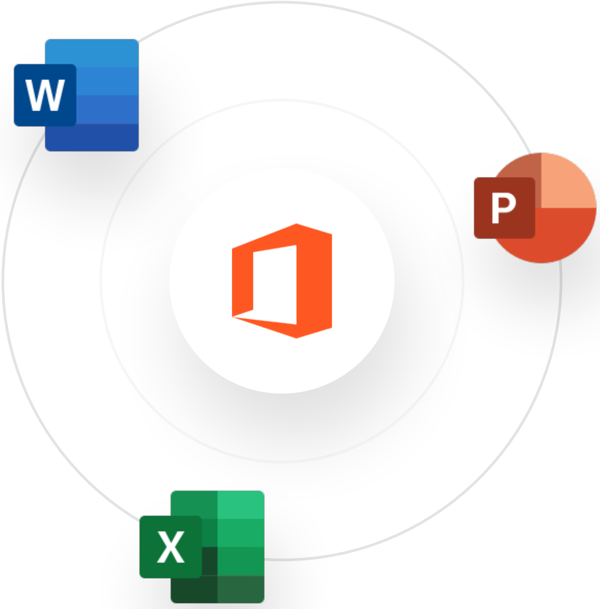


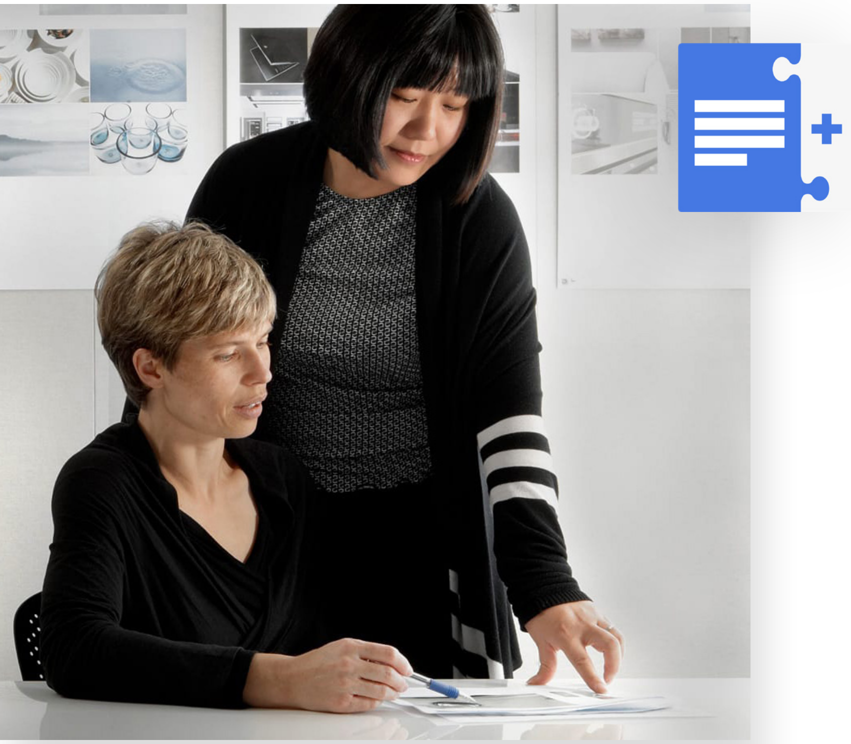
THE DESIGNER – MICROSOFT OFFICE

Every modern docgen product uses Microsoft Office as the template designer. While you can find a few very old products that have their own designer, you want to limit your consideration to those built on Office as it is far superior.

Some solutions work with Word, Excel, & PowerPoint while others are Word only. If you need Excel & PowerPoint, then obviously, go with a solution that supports them too. If you only need Word, think carefully if you might want Excel or PowerPoint someday in the future.

Again: if you go with a Word only solution, be very sure you won't ever want Excel or PowerPoint. Ever!





Google Docs, Star Office, etc.
The docgen solutions that have a separate add-in or no add-in can usually work with any word processor that can save as a DOCX file. It all tends to work exactly the same. For a full Word clone, this can work every bit as well.

Google Docs in this case though tends to be problematic because Google Docs does not have the layout and formatting capability of Microsoft Word. Not even close. Your limit here is not the docgen app; it's Google Docs. For most use cases, Google Docs is not up to the job.

CRITICAL FUNCTIONALITY

The following 8 items are key to the success of any docgen solution. If any of these is a mismatch for your needs and requirements, you will at best have a lousy solution. And you could very well fail. Understanding how each aligns to your use cases is critical to your success.

DESIGNER ADD-IN

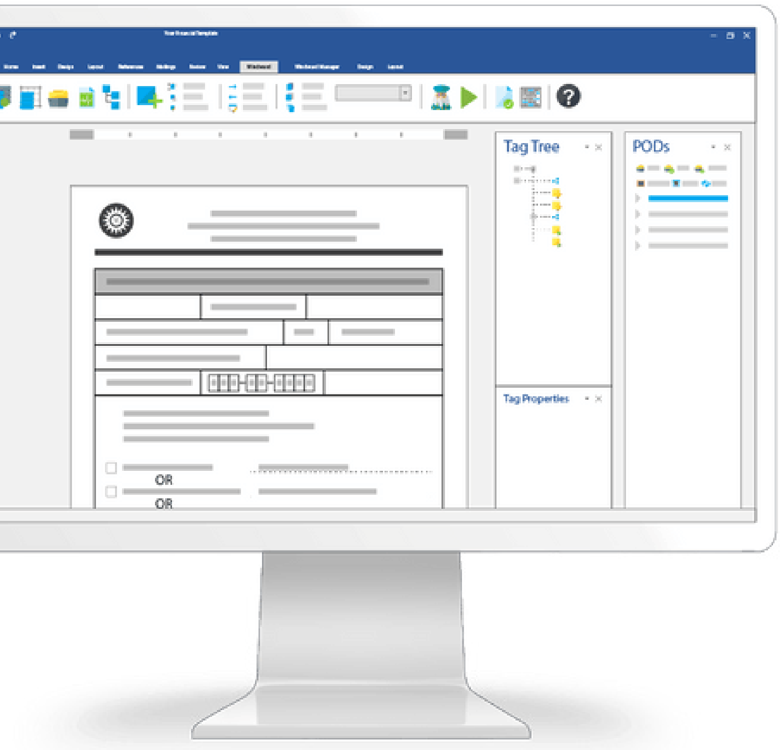
Some docgen solutions include an add-in to help you place & edit the tags in the template. These come in two flavors; one much better.

First, some docgen solutions have no add-in to assist in crafting tags. You usually end up with notepad open where you write all the various tags and you copy from there and paste into Word. And for special uses, you type in, from memory or other notes, the additional properties.

This “no add-in” approach is slow, painful, & error prone. If you have 5 templates, each with 5 tags – then no big deal. But if every month you’re creating 100 templates, each with 150 tags, you’re now in hell.

FROM OUR CEO

> *While Windward can legitimately claim to be a “no Add-In” solution for designing on platforms other than Windows – we find that approach so inferior, we state that we cannot be used for this use case.*
>
> *We prefer to not get your business rather than provide you a significantly inferior approach.*



Not only is it slow & expensive, but because it is a death march, designers will not put in the effort to make a template shine. They just want to be done.

The second approach (much better) is a second application (usually in a browser) that helps you write tags. You must still have to copy & paste between this second app and Word, but the add-in provides all possible choices for tags and helps you write your queries.

Not all the side-by-side add-in approaches are the same. Play with each carefully to see how it works for you, not in simple sample cases, but in the more complex templates you will need to create.

The third approach (best) is an add-in that becomes part of Word; adding additional tabs to the ribbon. This makes adding and revising tags a breeze because it works on the tag in the template. And while helping to write each tag, it can do so in the context of where it is in the template.

The incorporated add-in approach is by far the best butis limited to Office on Windows.

This add-in is one of the two features (the query wizard below is the other) that determines how much time your team will spend designing templates, day after day, week after week, year after year. If one approach is 15 seconds longer, and you are going to create 500 templates each with just 35 tags (that's low), that's 73 hours.

CODE BEHIND

While all the Document Generation solutions require you write code to call them (docauto is a no-code solution so not an issue), some of them require additional code for each template. This is called "code behind."

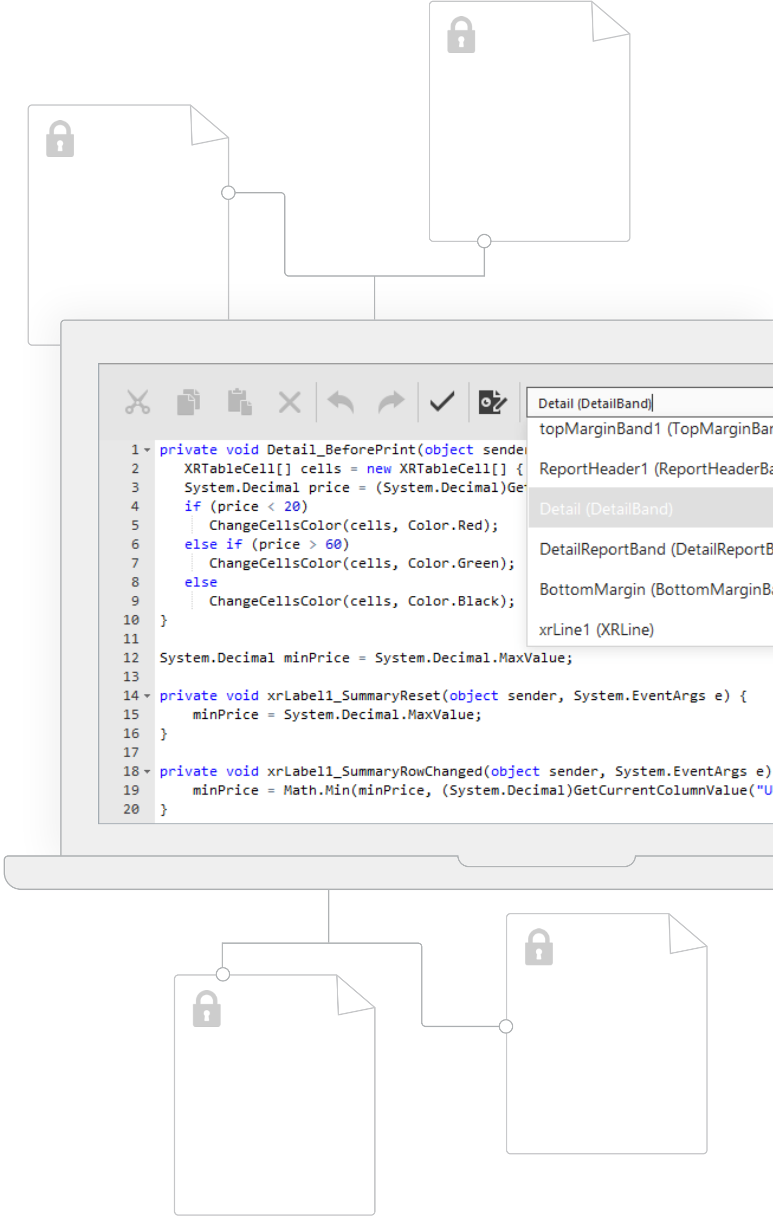
In some cases, this code behind is defining different data specifications, such as you now also need the hire date. For these solutions, you don't need code for each template, but a fair number of times templates will require additional data, or data ordered differently, and you have a code change.

Even worse, some require code behind for each template. Therefore, each new template means additional code. This is a giant hit.

Why? First you have programmers involved in template design. That's expensive and slows the process down. Second, each new template requires rebuilding your application and pushing it through test & staging.

The one advantage to code behind is the developers can build data on the fly as it's needed, including data generated according to business rules within the code. But in almost all cases, doing so directly in the template, as opposed to in the code behind, is superior.

In other words, you want the template file to be everything.



Detail (DetailBand)
topMarginBand1 (TopMarginBar
ReportHeader1 (ReportHeaderBa
Detail (DetailBand)
DetailReportBand (DetailReportB
BottomMargin (BottomMarginBa
xrLine1 (XRLine)

```
private void Detail_BeforePrint(object sende
   XRTableCell[] cells = new XRTableCell[] {
   System.Decimal price = (System.Decimal)Ge
   if (price < 20)
      ChangeCellsColor(cells, Color.Red);
   else if (price > 60)
      ChangeCellsColor(cells, Color.Green);
   else
      ChangeCellsColor(cells, Color.Black);
}

System.Decimal minPrice = System.Decimal.MaxValue;

private void xrLabel1_SummaryReset(object sender, System.EventArgs e) {
    minPrice = System.Decimal.MaxValue;
}

private void xrLabel1_SummaryRowChanged(object sender, System.EventArgs e)
    minPrice = Math.Min(minPrice, (System.Decimal)GetCurrentColumnValue("U
}
```

DRAG & DROP DOCLETS

One (or several) users can create content for a template that are saved off. Then they or other users can drag those saved doclets to drop onto a template. This provides template designers a way to create very complex templates easily by dragging the needed components. It also eliminates repetitive tasks.

For each docgen app, evaluate their drag/drop on the following criteria:

1. How do you create a doclet?
The best solution is to select content in Word and save that as a doclet. If it's more restrictive than this, will those restrictions stop you from creating very useful doclets?

2. Does it bring the full formatting of the doclet into the document it is dropped into?
This is actually a very hard thing to do in Word if the doclet uses styles that exist in the template with the same name – but different settings.

3. What can be saved?
Just template content? Or can you also save datasources, parameters, and more?

4. After you drop is it complete? Or do you need to perform additional steps? For example, if a doclet uses a different datasource, is that datasource now also tied to the template?

5. Can doclets in a template be updated? If a doclet is the company logo and the logo changed, can all the templates using that doclet be updated to the new logo universally?

FROM OUR CEO

> *The optimum approach is linked doclets so you see the imported doclet in full, and it automatically updates.*

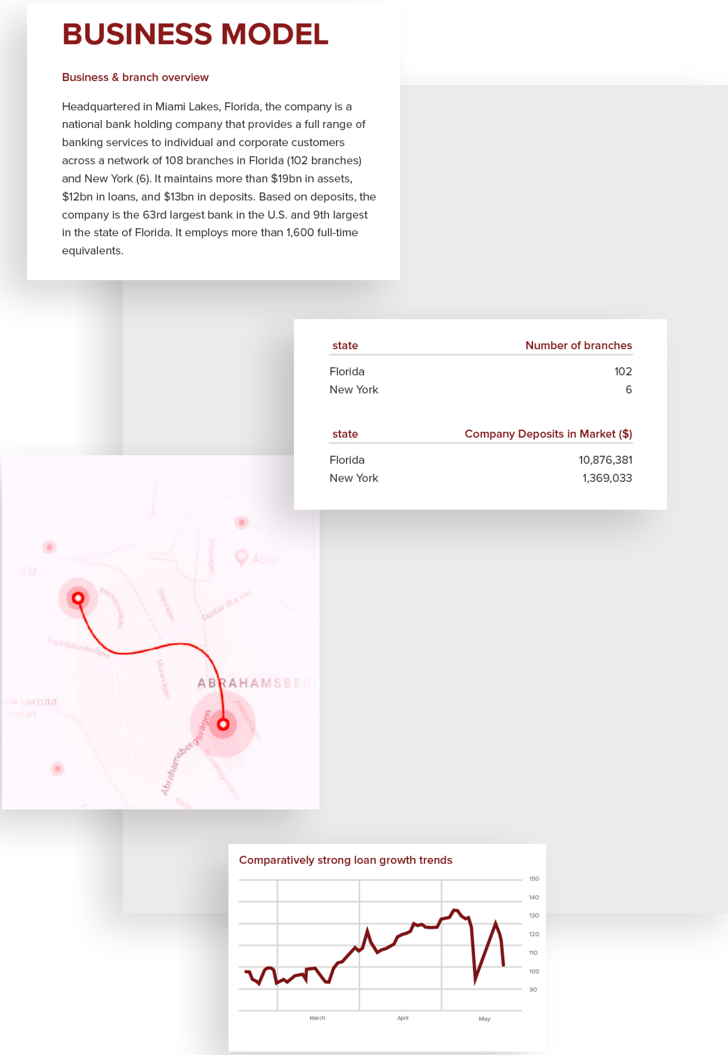
David Thielen

The dropped doclets come in several flavors. The optimum are linked doclets where the content of the doclet is displayed in your template in full, fully laid out and formatted. And as it is linked, when the doclet itself is revised, that change immediately appears in your template and is used in every generated document.

Once you drop a doclet into your template, you can can adjust it any way you wish from formatting to tags in the content. But if the original doclet is changed, that change is not applied in your template. In some uses this is preferable when you don't want changes applied to existing templates.

The third approach is there is a tag that will import the doclet. You don't see the contents of the doclet in your template, but when the template is processed, it will pull the live copy of the doclet. This is valuable when you have a select that will determine which doclet to import. This is useful for cases like you need to pull in content based on the State the recipient of the document lives in.

The optimum of course is to have all three flavors available to use each as appropriate.



BUSINESS MODEL

Business & branch overview

Headquartered in Miami Lakes, Florida, the company is a national bank holding company that provides a full range of banking services to individual and corporate customers across a network of 108 branches in Florida (102 branches) and New York (6). It maintains more than $19bn in assets, $12bn in loans, and $13bn in deposits. Based on deposits, the company is the 63rd largest bank in the U.S. and 9th largest in the state of Florida. It employs more than 1,600 full-time equivalents.

state	Number of branches
Florida	102
New York	6

state	Company Deposits in Market ($)
Florida	10,876,381
New York	1,369,033

QUERY WIZARDS

Your most common activity creating templates will be writing the queries to select the data. You do this to select blocks of data such as all stocks you hold for a portfolio statement. You also do this for conditional logic in the template such as adding insurance requirements for an offer letter if they reside in California. Or, when placing a name in loan papers.

Some docgen products do not have query wizards. With no wizards, then template creation is a developer-only task. And for developers, it will be slower. No wizards mean you can never turn template creation over to business users.

FROM OUR CEO

> *You will do this hundreds of times in complex templates. Thousands of times across all the templates. You want this to be quick & easy. This functionality, more than everything else put together, determines how much time you will spend designing templates, and how pleasant it is.*

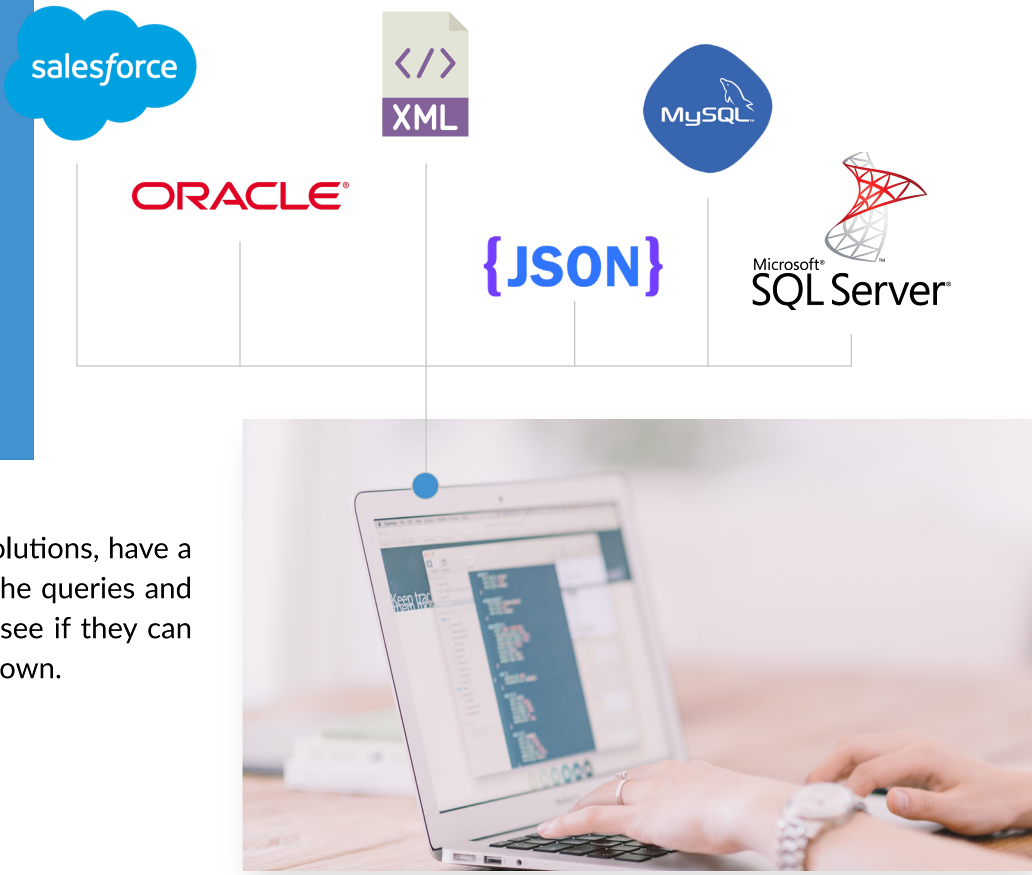
– David Thielen

When you evaluate different docgen solutions, have a business user use the system to craft the queries and see how well they do, which is key to see if they can learn it and then be successful on their own.

In the case of conditional tags (if, switch, etc.) make sure it also works well on elements returned by other tags (usually the iterative tags). Because in this case, it's not a query of the data, it's a condition on data already returned.

In the case of conditional tags (if, switch, etc.) make sure it works well there too on elements returned by other tags (usually the iterative tags). Because in this case it's not a query of the data, it's a condition on data already returned.

Finally, keep in mind that no matter how brilliant the query wizards are, the user will also generally struggle with the structure of the data (the metadata). This can be displayed to the user, but they still need to learn what is where. Reducing what metadata is displayed, providing the descriptions for each node in the metadata, etc., can make the difference between a usable and unusable solution for business users.



MULTIPLE DATASOURCES

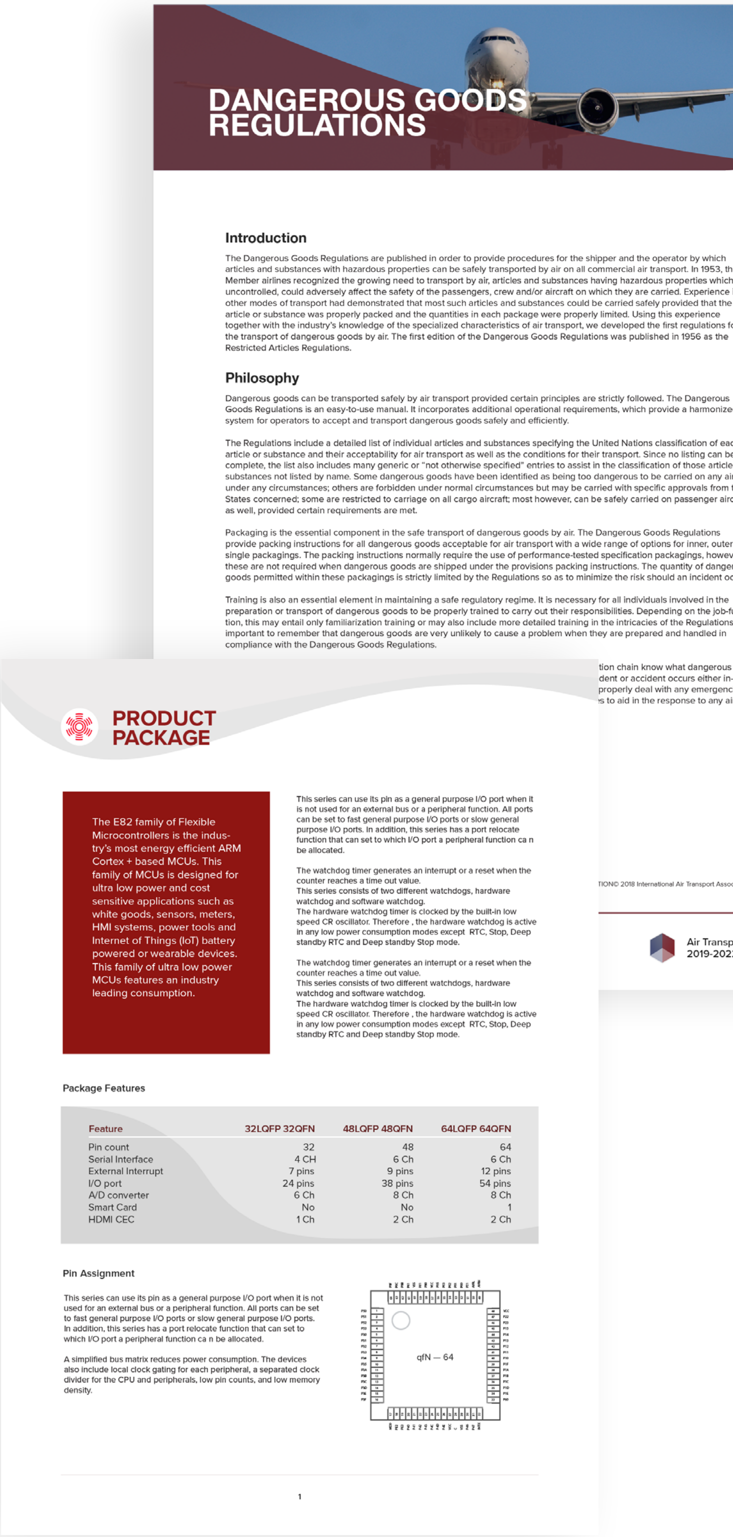
If you have a single datasource, then skip this section–you don't care.

Ok, so you have multiple datasources: for example Salesforce & Marketo. And you have documents you want to populate with data from each. In this case you must get a docgen solution that lets you have tags in a single template that are marked for which datasource that tag is to be applied to.

Some providers implement this in two passes: first by applying all the Salesforce tags and then starting over and applying all the Marketo tags. This works fine if you are not intermixing the data.

Sometimes you need to intermix the data: for example, if your document lists all Account Executives (from Salesforce) and then within the data for an AE it lists the emails they were sent (from Marketo). Then you need a solution that processes all datasources simultaneously.

If you have multiple datasources, you almost certainly will eventually need a solution that processes multiple datasources simultaneously. If it's not a must-have today, **it probably will be a must-have in a year.**



DANGEROUS GOODS
REGULATIONS

Introduction

The Dangerous Goods Regulations are published in order to provide procedures for the shipper and the operator by which
articles and substances with hazardous properties can be safely transported by air on all commercial air transport. In 1953, th
Member airlines recognized the growing need to transport by air, articles and substances having hazardous properties which
uncontrolled, could adversely affect the safety of the passengers, crew and/or aircraft on which they are carried. Experience i
other modes of transport had demonstrated that most such articles and substances could be carried safely provided that the
article or substance was properly packed and the quantities in each package were properly limited. Using this experience
together with the industry's knowledge of the specialized characteristics of air transport, we developed the first regulations fo
the transport of dangerous goods by air. The first edition of the Dangerous Goods Regulations was published in 1956 as the
Restricted Articles Regulations.

Philosophy

Dangerous goods can be transported safely by air transport provided certain principles are strictly followed. The Dangerous
Goods Regulations is an easy-to-use manual. It incorporates additional operational requirements, which provide a harmonize
system for operators to accept and transport dangerous goods safely and efficiently.

The Regulations include a detailed list of individual articles and substances specifying the United Nations classification of eac
article or substance and their acceptability for air transport as well as the conditions for their transport. Since no listing can be
complete, the list also includes many generic or "not otherwise specified" entries to assist in the classification of those article
substances not listed by name. Some dangerous goods have been identified as being too dangerous to be carried on any air
under any circumstances; others are forbidden under normal circumstances but may be carried with specific approvals from t
States concerned; some are restricted to carriage on all cargo aircraft; most however, can be safely carried on passenger airc
as well, provided certain requirements are met.

Packaging is the essential component in the safe transport of dangerous goods by air. The Dangerous Goods Regulations
provide packing instructions for all dangerous goods acceptable for air transport with a wide range of options for inner, outer
single packagings. The packing instructions normally require the use of performance-tested specification packagings, howev
these are not required when dangerous goods are shipped under the provisions packing instructions. The quantity of danger
goods permitted within these packagings is strictly limited by the Regulations so as to minimize the risk should an incident oc

Training is also an essential element in maintaining a safe regulatory regime. It is necessary for all individuals involved in the
preparation or transport of dangerous goods to be properly trained to carry out their responsibilities. Depending on the job-fu
tion, this may entail only familiarization training or may also include more detailed training in the intricacies of the Regulations
important to remember that dangerous goods are very unlikely to cause a problem when they are prepared and handled in
compliance with the Dangerous Goods Regulations.

tion chain know what dangerous
dent or accident occurs either in-
properly deal with any emergenc
:s to aid in the response to any ai

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2019-202

PRODUCT
PACKAGE

The E82 family of Flexible Microcontrollers is the industry's most energy efficient ARM Cortex + based MCUs. This family of MCUs is designed for ultra low power and cost sensitive applications such as white goods, sensors, meters, HMI systems, power tools and Internet of Things (IoT) battery powered or wearable devices. This family of ultra low power MCUs features an industry leading consumption.

This series can use its pin as a general purpose I/O port when it is not used for an external bus or a peripheral function. All ports can be set to fast general purpose I/O ports or slow general purpose I/O ports. In addition, this series has a port relocate function that can set to which I/O port a peripheral function ca n be allocated.

The watchdog timer generates an interrupt or a reset when the counter reaches a time out value.
This series consists of two different watchdogs, hardware watchdog and software watchdog.
The hardware watchdog timer is clocked by the built-in low speed CR oscillator. Therefore , the hardware watchdog is active in any low power consumption modes except RTC, Stop, Deep standby RTC and Deep standby Stop mode.

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Package Features

Feature	32LQFP 32QFN	48LQFP 48QFN	64LQFP 64QFN
Pin count	32	48	64
Serial Interface	4 CH	6 Ch	6 Ch
External Interrupt	7 pins	9 pins	12 pins
I/O port	24 pins	38 pins	54 pins
A/D converter	6 Ch	8 Ch	8 Ch
Smart Card	No	No	1
HDMI CEC	1 Ch	2 Ch	2 Ch

Pin Assignment

This series can use its pin as a general purpose I/O port when it is not used for an external bus or a peripheral function. All ports can be set to fast general purpose I/O ports or slow general purpose I/O ports. In addition, this series has a port relocate function that can set to which I/O port a peripheral function ca n be allocated.

A simplified bus matrix reduces power consumption. The devices also include local clock gating for each peripheral, a separated clock divider for the CPU and peripherals, low pin counts, and low memory density.

1

TAGS START & END LOCATION

Some tags have a start and end location, such as the if and forEach (iterative) tags. Generally, these are used to repeat or conditionally include a row in a table or a paragraph of text. All solutions do this.

But as time goes on and you create more advanced and complex templates, you will find yourself wanting to start the iteration in the middle of a table–or an if that removes two cells and adjusts the table correctly.

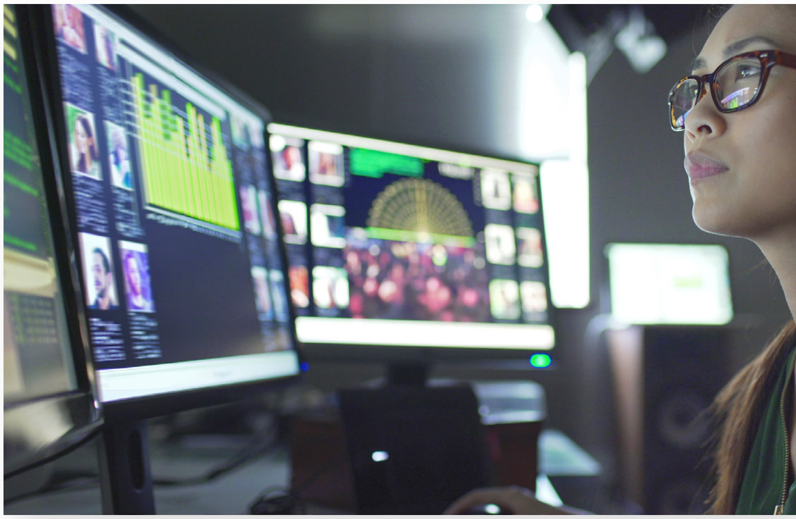
In addition, you almost certainly will need a forEach (iterative) tag that adds columns in a table, as opposed to rows. You may want a column for each product or each month in a dataset. Finally watch out for any limitations on combinations. At the start you need a single forEach tag. A year later you are nesting five forEach tags within each other as it's the only way to get what you want.

This is an area where it's impossible to give guidance on what you may someday need. **Your best bet is to select a solution that has no limitations on the start & end location.**

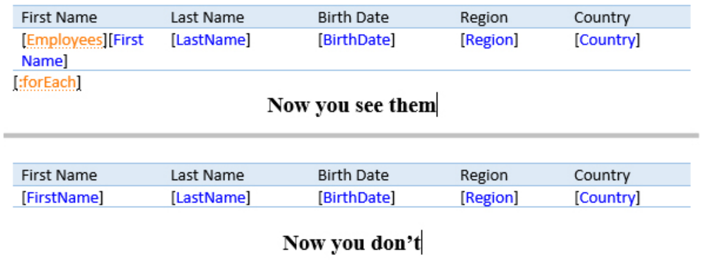
OPTIONALLY HIDING CONTROL TAGS

For a simple template, this doesn't matter (much). But as the logic expands in a template, you find that you are adding a lot of control tags. The most common are the iterative (forEach) and conditional (if) tags. But even a moderately complex template will also have numerous query and set tags along with several additional tags.

These tags, if displayed, pollute the template and enlarge the layout in the template. Usually you'll find the template looks quite different from the final generated report. This makes it difficult to truly imagine the final document from the template. It's frustrating to have to constantly run test documents to see what you're going to get.



You'll be much happier if the designer can at the click of a button hide or show the control tags. Show them when you're working on the template logic. Hide them when you're working on the final layout and formatting. This option will save you time and more importantly will make the design experience more pleasant.



First Name	Last Name	Birth Date	Region	Country
[Employees][First Name]	[LastName]	[BirthDate]	[Region]	[Country]

[:forEach]

Now you see them

First Name	Last Name	Birth Date	Region	Country
[FirstName]	[LastName]	[BirthDate]	[Region]	[Country]

Now you don't

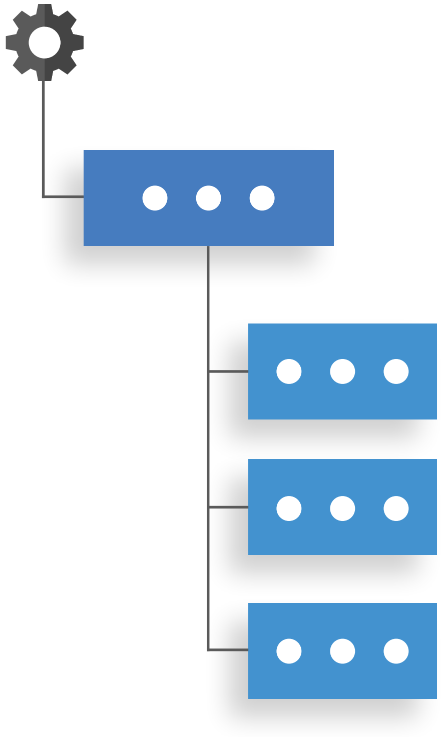
Even on something as simple as this table, the ability to hide the control tags is a clear benefit.

IMPORTED TEMPLATES

The best way to use content across multiple templates is to have that content in a child template that the parent templates all import. These imported templates can be brought in as an explicit filename or as a data query that returns the filename.

Trusth me: unless your needs are incredibly simple, you need this. You can work around it even if you repeat the same content in 100 templates, but you're giving yourself too much extra work when wording changes due to company directives or legislation.

One critical detail on imports: does the system process tags in the imported child template? If all your child templates are static text (legal clauses), then this does not matter. But if you need to include anything live (a person's name, a date, a state of residence), then you need a solution that process tags in the imported child template.



Finally, for MS Word only, how does it handle style mismatches? If the parent has the Normal style set to Times New Roman 12pt and the child has Normal set to Verdana 10pt, then what should the child paragraphs be styled as? This can be a royal pain because different users never have their styles matching.

Some systems convert the child to the parent formatting. Some retain the child formatting. And some (best solution) give you the option of either. The option is best but if it's forced one of the two ways, make sure the system you get works that way.

Not having the expected styling on output is guaranteed to get upper management upset.

IMPORTANT FUNCTIONALITY

One of the below might be critical to your use case. Several might be useful. But in most cases, none is a must-have. They do, however, provide a picture of the breadth of each product.

FUNCTIONS (MACROS) INCLUDED & CUSTOM

For the solutions that allow queries in the tags, you want one that also supports complex functions operating on the data. And not just simple functions like SUM() and COUNT() but most of what's available in Excel. You will use Text and DateTime a lot.

In addition, can you add your own functions? Adding custom functions is often a significant component of providing a simple & easy design experience to business users. It's also a lot safer. For complex calculations you write it once in the function and test it carefully. No worries about someone screwing it up writing it by hand in a template.

DOCUMENT LOCKING

If you want to create DOCX or XLSX files that an employee can edit parts, document locking is incredibly valuable. For example, you are generating portfolio statements and the legal disclaimers and actual financial results must not be changed, but there is a paragraph where the financial advisor can write up more summarizing the performance.

In this case, some of the solutions will carry document locking in DOCX & XLSX (PPTX does not have this) over to the output. So, if the template has locked all except one paragraph, then the generated DOCX will be locked except for that one paragraph.

ACCESS PROVIDERS

All of the products (I believe) support reading files from BASIC, Digest, Negotiate, & Oauth2. But what about a special Authenticate & Authorize you created in your company for one set of files? Or something special to get to a JSON file from a REST service that is home-grown?

First off, make sure the solution supports the standard protocols you use. You should get a yes. And if that's all you have–fantastic; you can skip to the next section.
If you have a home-grown A&A. find out what needs to be done to have the system access it. This is a custom Access Provider. And make sure that the same Access Provider is used for reading data files (XML & JSON), accessing OData, and importing files (templates & pictures).

FROM OUR CEO

> *Having the document locking functionality tends to make your lawyers very very happy. It eliminates a source of serious legal liability.*

– David Thielen

VALIDATION, ERROR & WARNING HANDLING

What is provided here is all over the board. And it's difficult to get specific about what is most useful to you, as opposed to the next person. The best advice here is just look at what they have and try it out when evaluating.

One tool is validating a template. Not running it, but inspecting it and providing information on errors found. A second tool is to generate the document and deliver a list of errors and warnings. For example, if some content is placed off the page, it was rendered but you don't see it. In this case it's useful to have a listing of content off the page.

In this category you can include tag settings: what to do if a select fails, returns nothing, etc. Some of these are particularly useful but in other cases, you can find yourself investing more time than it's worth.

PROCESS EMBEDDED OFFICE OBJECTS

What if you are generating portfolio statements using a Word template? It has descriptive text, a chart showing performance, legal disclaimers, etc. But where it has a table showing the actual numbers, you want to place an embedded spreadsheet with the numbers.

Why? Because this way the recipient can open that spreadsheet and then, using Excel, measure that data any way they want. It's a much-improved portfolio statement and something that makes the recipient go WOW.

If you want this, verify that the vendor you select not only carries embedded objects to the output, but that the embedded object, if a DOCX/PPTX/XLSX file, has tags in it processed. To make good use of this functionality the embedded object must be treated as a live template, not a static document.

If fully implemented, the output to any format, such as PDF, will include the displayed embedded object.

This is generally not required, but it is an opportunity to make people love what you create.

WORD FORM FIELDS

This is a DOCX -> PDF issue. Do you need to have form fields in the DOCX such as drop down, list or check box become the equivalent thing in PDF output? If so, you need to verify that this feature is supported.

In addition, make sure that the initial content/value in the form field can be set from data. If it's just static values from the template, that's usually insufficient for all use cases.

And a suggestion: When you need an empty or checked box depending on data, don't use a form field. Use the Wingdings characters ☐ and ☒.

EXCEL REFERENCES & PIVOT TABLES

This is two XLSX -> XLSX issues. First, verify that a formula like SUM(D5:D5) expands to SUM(D5:D15) for the case where the row 5, inside an iterative loop, becomes rows 5 to 15. It's very useful to have the formula adjusted (some products just write the literal value) on the output. This way, when someone adjusts say D7 to see what happens, all the formulas now adjust to that difference.

The same for pivot tables. If a pivot table is for D1:H5 and the generated XLSX now has those rows as D1: H125, the pivot tables are adjusted to match. This is necessary to use the pivot tables in the generated XLSX.

If you're going to generate XLSX for Excel Power Users, this is key.

CAPABILITIES

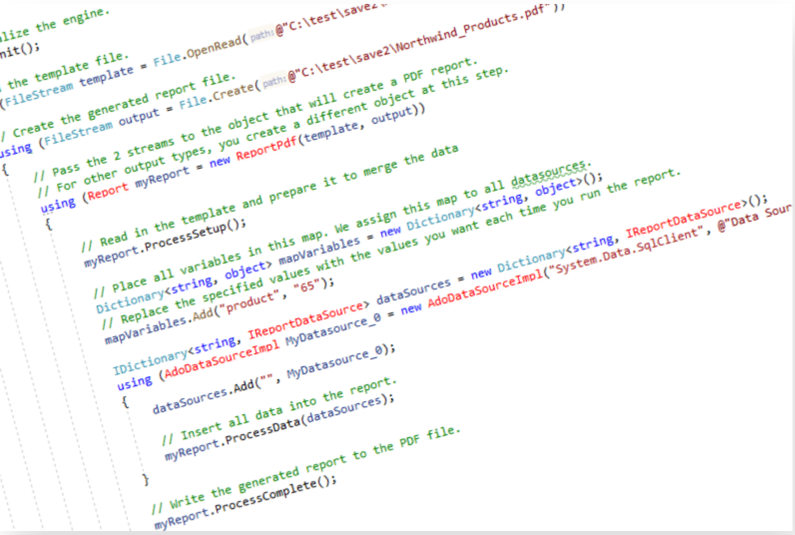
These are mostly yes/no items. If you have data in SQL, the product needs to support SQL and you don't care if it supports JSON. Same for programming language & output formats. So fast check-off here.

PROGRAMMING LANGUAGES

This is not an issue for docauto, just document generation.

There are three ways to call a docgen engine: Direct calls to a library, calls to a RESTful server on premises, and calls to a hosted (SAAS) RESTful server. Ask if they have what you want.

One note on Hosted solutions: You will be sending data to that system. First, you want to make sure that the vendor is providing adequate security. Second, if your data is not allowed to go outside your country or region (E.U.), find out not just where the default server is, but also the failover server.



```
lize the engine.
nit();

 the template file.
(FileStream template = File.OpenRead( path: @"C:\test\save2\
                                                          Northwind_Products.pdf"))
/ Create the generated report file.
using (FileStream output = File.Create( path: @"C:\test\save2\Northwind_Products.pdf"))
{
    // Pass the 2 streams to the object that will create a PDF report.
    // For other output types, you create a different object at this step.
    using (Report myReport = new ReportPdf(template, output))
    {
        // Read in the template and prepare it to merge the data
        myReport.ProcessSetup();

        // Place all variables in this map. We assign this map to all datasources.
        Dictionary<string, object> mapVariables = new Dictionary<string, object>();
        // Replace the specified values with the values you want each time you run the report.
        mapVariables.Add("product", "65");

        IDictionary<string, IReportDataSource> dataSources = new Dictionary<string, IReportDataSource>();
        using (AdoDataSourceImpl MyDatasource_0 = new AdoDataSourceImpl("System.Data.SqlClient", @"Data Sour
        {
            dataSources.Add("", MyDatasource_0);

            // Insert all data into the report.
            myReport.ProcessData(dataSources);
        }
        // Write the generated report to the PDF file.
        myReport.ProcessComplete();
```

If you're concerned enough about security to be asking these questions, you should probably host the RESTful server yourself. Even if you place it on AWS or Azure, you are controlling access to the server and its location.

SUPPORTED DATASOURCES

If all your data is JSON (or any other type), you don't have to worry about what else the system can access. With that said, everything is getting more interconnected and odds are sooner or sooner you will have to access other datasource types.

Life is a lot safer if the solutions can use data from SQL, XML, JSON, & OData. And why OData? 150 other vendor's datasources, from ACT to Salesforce to Zoho. Not a deal breaker but it will turn out to be useful.

See if you can create datasets from datasources. This is akin to views in SQL but you are creating them in the template (no DBA needed). And you want them for XML, JSON, & OData too. A good guide to how robust the dataset implementation is–do they basically become another datasource? If so, that's a full implementation.

Furthermore, it can take time and bandwidth to download the metadata from a datasource. We saw one DB2 database take 28 minutes to download the full metadata (yes – truly!). If you have datasources with large metadata structures, find out if they have a way to read the schema once and reuse that. (This is unlikely to ever be needed for XML or JSON–it's SQL, OData, & any custom datasources.)

Finally, for XML, make sure it uses the XML schema if one is available.

OUTPUT FORMATS

Check that it renders in the output formats you need. Everyone does PDF, HTML, DOCX, XLSX, & PPTX (last two if they support that template type). Additional output formats might be useful, but odds are you'll never need them.

Check the accuracy of the PDF output. Everyone is imperfect on this. And in their, and our, defense, Microsoft does not document how Word calculates page layout. It does not specify the calculation between 2 lines of single-spaced text. And it's impossible to reverse engineer accurately–Word is clearly performing complex calculations, not just using the font metrics.

Everyone does their best. Some come closer than others. Look for a good match but accept it won't be perfect.

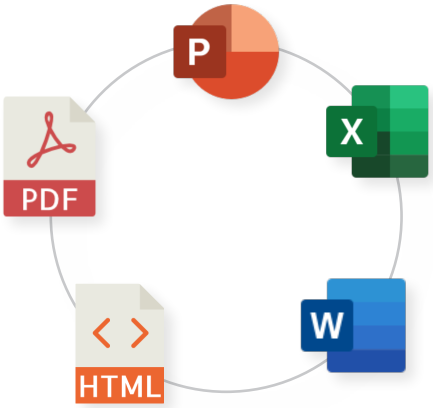
MISCELLANEOUS

Are you still here? Wow – congratulations! We're now into some features that you may find useful but are unlikely to be major. But these do make good tiebreakers in your decision. And you may find one of the below to be major; for example, output that must be auto-hyphenated.

PARAMETERS

All products have a way to pass parameters to the template to use in the queries. Check that they have all the data types you need (they probably do).

Check that parameters can be set in a select as both a parameter (avoid injection attacks) and as a string substitution if desired. Setting as a parameter is valuable not only to avoid an injection attack, but to handle the cause of passing the name O'Malley.



CONDITIONAL FORMATTING

Excel has conditional formatting for a cell. But Word and PowerPoint do not. If you need conditional formatting, check if the solution you are looking at has it, and if so, if it's sufficient.

AUTO-HYPHENATION

For output to PDF and a printer, if you want auto-hyphenation, make sure the solutions you are looking at offer it.

TAG TREE

Does the designer have a way to show the structure of the tags in the document? And clicking on one, go to that tag? There is no need for this in simple templates. but when you get to 30+ tags it becomes useful. And at 80+ it becomes essential.

If you'll always be under 50 tags, no big deal. But if you start under 50 tags and will grow to 200+ tags in a template, not having this will become a big deal. So, think about where you'll be in 5 years.

RESEARCH GROUP

Information Drives Business

"Microelectronics develops the semiconductor technology used in the chips for high-end servers and systems. We collaborate with a variety of business partners to develop this technology and, as an alliance of developers, we are able to better compete in the marketplace," said Senior Engineering Manager within the Semiconductor Research and Development Center.

In order to work with its community of partners and customers, Microelectronics publishes design manuals that are shared with developers worldwide. The design manuals include complex information that ranges from descriptions of the semiconductor technology to the rules for designing and building the chips. "It's all about information. The most important thing our group provides to our business partners isn't the technology, but information about the technology". Ensuring the timeliness and quality of the information within Microelectronics' design manuals is critical, and the team was finding it difficult to rely on outdated publishing practices built-on-tools — that require technical experts to undergo manual, labor-intensive, and error-prone authoring processes. "The information we generate is extensive. When printed, our design manuals are measured in inches. It's a lot of information, and we had to find a better way to deliver it to our customers."

"We integrated XML Author with content manager because it addressed a lot of the problems that we needed to solve..."
Senior Engineering Manager

1

US Small-Caps Banks

Investax Bank (INVSTX)

BUSINESS MODEL

Business & branch overview

Headquartered in Miami Lakes, Florida, the company is a national bank holding company that provides a full range of banking services to individual and corporate customers across a network of 108 branches in Florida (102 branches) and New York (6). It maintains more than $19bn in assets, $12bn in loans, and $13bn in deposits. Based on deposits, th company is the 63rd largest bank in the U.S. and 9th largest in the state of Florida. It employs more than 1,600 full-time equivalents.

state	Number of branches
Florida	102
New York	6

state	Company Deposits in Market ($)
Florida	10,876,381
New York	1,369,033

It was established in May of 2009, when its current Chairmar President and CEO along with a group of investors acquired substantially all of the assets and liabilities for $945mn. Following this purchase, it was transformed into one of the most well capitalized financial institutions in the country.

20 August 2019 Page 1

ANNUAL REPORT
2019

Performance data represents past performance, which does not guarantee future results. Current performance may differ from figures shown. The fund's investment return and principal value will change with market conditions, and you may have a gain or a loss when you sell your shares. Please contact us for the most recent month-end performance.

PORTFOLIO MANAGER INSIGHT
The information provided is not a complete analysis of every material fact regarding any country, market, industry, security or fund. Because market and economic conditions are subject to change, comments, opinions and analyses are rendered as of the date of this material and may change without notice.

The rapid growth of the cloud services platform over the last five years has helped the company deliver impressive earnings growth and notch one of the best performances of the tech stock in recent years.

The portfolio characteristics listed are based on the fund's underlying holdings, and do not necessarily reflect the fund's characteristics. Due to data limitations all equity holdings are assumed to be the primary equity issue (usually the ordinary or common shares) of each security's issuing company. This methodology may cause small differences between the portfolio's reported characteristics and the portfolio's actual characteristics. In practice, the portfolio managers invest in the class or type of security which they believe is most appropriate at the time of purchase. The market capitalization figures for both the portfolio and the benchmark are at the security level, not aggregated up to the main issuer. Any exceptions to this are noted. Information is historical and may not reflect current or future portfolio characteristics. All holdings are subject to change.

We continue to find attractive investment opportunities across multiple equity sectors, and our approach has emphasized identifying companies that offer compelling current dividend yields along with the potential for long-term total return. We believe companies with a demonstrated ability to generate free cash flow (calculated as the operating cash flow minus capital expenditures) and return that cash to shareholders over time should be in a better position to deliver superior total return potential even in weaker equity market environments.

DATA COUNT

If you run a template and it takes forever, or it completes but it's 2,00 pages long when you expected 2 pages – why? You can ask a DBA and they can track your selects and tell you the problem.

It's faster and easier if the template add-in has a tool that tells you for each iterative select how many rows of data it returns and how long the query took to complete. From this you can quickly find what is wrong.

Useful, not essential.

GENERATE CODE

This is used once and saves at most 15 minutes–but it is very nice to have. This is irrelevant for the solutions that have code behind; they create code for each template.

For the one-time code to illustrate what code is needed to add to your application to use the docgen system, it's ideal if they include a generate code feature that provides you sample code. And in addition, you know the correct way to call the engine.

Nice, not essential.

DEBUGGERS

Fortunately, these are rarely needed. But when needed, they can be a big timesaver. There are several different debuggers that may be in a docgen template designer add-in.

- **Template Debugger** – This is a means to step through applying data to a template to generate the document. You want the common features of breakpoints, single step, and viewing all data and state when you brake into the debugger. This helps you debug the business logic in your template.

- **Connection Debugger** – This is a means to help you find the right connection string to a datasource. (Usually SQL but it can also be a URL to XML/JSON/OData.) This will attempt the connection and if it fails, provide all exception information. It will also help with writing the connection string.

- **Query Debugger** – This is a means to determine why a select is invalid. Again, the main use here is try different selects and then see the exceptions returned. It's a fast way to go through trial & error.

  As stated above, these are rarely needed so they're in the "useful but not important" category --except that one time you really really need it.

TAGS

Every product has different names for the various tags. Here we use the tag names from Windward, but everyone has most of these (albeit under different names).

It's also important to look at the specific functionality of some tags. Can the import tag optionally insert a section break (Word) before/after the import? Can the forEach tag insert a section break, new workbook, and/or new slide on each iteration? Are bitmap & chart tags actual Office pictures & charts?

- **out**
  Place the data from a select at this location

- **import**
  Data returns a filename or URL, place what's in that file at this location

- **bitmap**
  Some solutions handle bitmaps as part of the out & import tag. Others have a distinct tag for bitmaps (sometimes called pictures).

- **set**
  Set the value of a parameter (new or existing)

- **query**
  Reads one row of data to be used by other tags

- **forEach, endForEach** – Iterate through the rows of data in the query repeating the template content between them once for each row of data returned.

- **if, else, elseIf, endIf**
  Conditionally include content between if and else or else and endIf based on the result of the query. The else is optional. Note: Windward does not have elseIf.

- **switch, case, endSwitch**
  Like if but has multiple case statements within the switch.

- **link, endLink**
  The query returns a URL for the link. The link is applied to all content between the start and end tag.

- **bookmark**
  A link anchor inside the document. The name set from the data.

- **chart**
  A chart built from data. Some systems for DOCX/XLSX/PPTX output create an Office chart object (good) while some create a bitmap rendering of the chart (poor).

> It's fascinating the power of what you can create with this set of 11 tags. There really is no limit, yet it's with a moderately sized set of constructs. The power is in what each of those do under the covers.

DOCUMENT GENERATION PRODUCTS

Here is a list of document generation software that you can embed into your applications or solutions. The template design functionality is most of what's key for these solutions.

- **Docmosis**
  Generate documents and reports based on templates. Output in PDF/Doc/ODT from Java, PHP, C#, Ruby and more.
- **Ecrion**
  At Ecrion, we make customer communications management software for companies who want to establish genuine connections across multiple engagement channels.
- **Formstack**
  Use Formstack document generation software to merge data into custom-built documents. Document automation tools save hours of time and money.
- **HotDocs**
  No matter your industry or company size, HotDocs from AbacusNext has a solution to help speed up your document creation workflow.
- **Windward Studios**
  The Global Leader in Document Generation Solutions. Revolutionize your docgen. Windward provides seamless integration in your CRM or custom apps.
- **XPertDoc**
  Our specialty is document generation and document automation. Our mission is to enable organizations to digitally transform their document processes.

DOCUMENT AUTOMATION PRODUCTS

Here is a list of Low Code/No Code solutions that provide an end-to-end document automation solution. This guide focused solely on the template design step of these total solutions. You need to also evaluate the additional functionality each provides.

- **Conga**
  Conga's end-to-end AI digital document transformation increases business-critical efficiencies, leads, and revenue generation. Automate for ROI...
- **Formstack**
  Use Formstack document generation software to merge data into custom-built documents. Document automation tools save hours of time and money.
- **Nintex**
  Nintex is the market leader in end-to-end process management and workflow automation. Easily manage, automate, and optimize your processes with no code.
- **Templafy**
  Templafy helps companies perfect every aspect of business document creation. Enable your employees to work faster & within company standards every time.
- **Windward Studios**
  The Global Leader in Document Automation Solutions. Revolutionize your document generation. From a comprehensive SaaS or desktop solution, to seamless integration in your CRM, we have you covered.

* Was this helpful, too much, too little, or something else?
Please give us your feedback.

This paper was written by David Thielen, the founder and CEO at Windward.

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windward studios

For over 10 years, Windward has lead the industry with our world-class document generation platform that creates visually stunning, data-powered documents designed exactly the way users want and are created in a fraction of the time and cost compared to existing solutions. Proudly located in Boulder, Colorado, Windward Studios is the premier solution for developers and business users adding reporting and document generation capabilities to their applications in over 70 countries around the world.