skybow®

Replacing your Access Apps (SharePoint Access Services)
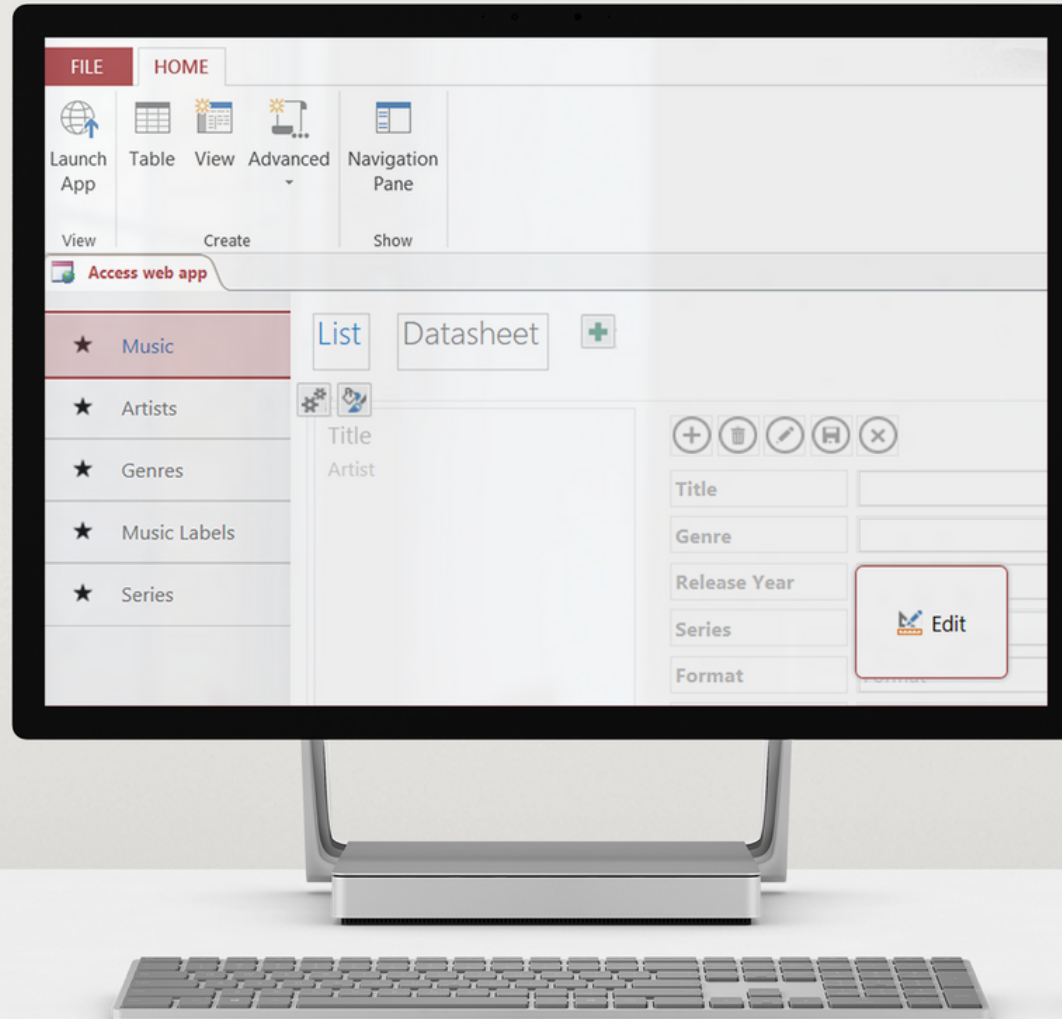
with skybow Solution Studio Online solutions

Summary

Business solutions are one of the major use cases for SharePoint. We all know this "Get me the leave-request solution in SharePoint" requirement, and, it was a valid requirement from the day one. SharePoint is, after all, a very good collection of data artifacts and building blocks. Yet, building such a solution in SharePoint was not, and still is not, an easy task. For one, because leave-request process is just enough different in every company, so that making a shelved solution is impossible, and for two, because building solutions on top of SharePoint was always something done by developers, and was considered as a standard development discipline. Microsoft has, mainly successfully, tried to approach this issue with InfoPath and workflows, tools for developing forms and business logic on top of SharePoint. Even with lot of limitations it has mostly fit the purpose. At least until SharePoint Server 2010, and especially SharePoint Server 2013 times.

Since SharePoint 2010, we have been witnessing introduction of SharePoint Access Services, and Access Apps (SP 2013), as a tool for building business solutions on top of SharePoint. This was a legitimate attempt from Microsoft, since it was already clear that InfoPath's life-cycle is coming to its end, and business solutions on top of SharePoint is still one of the major scenarios in the use of SharePoint. Anyway - Access was, from the day one, a success-story for citizen developers and business solutions on Microsoft Windows, so why not give it a try in SharePoint?
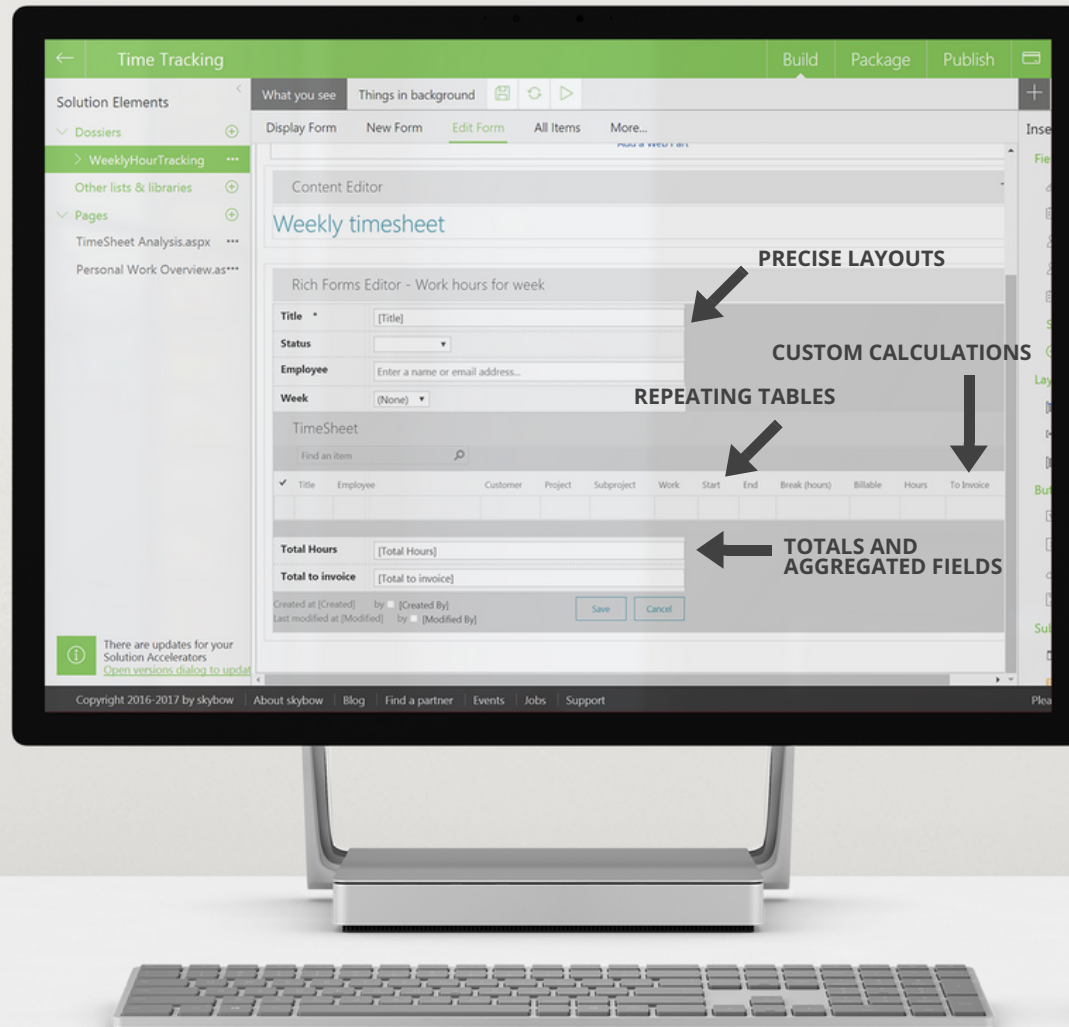
Well, because SharePoint is somewhat different, and it has always had its own rules, customs and traditions. Access Services in SharePoint are not really SharePoint. Data in Access Services is stored in a separate SQL database, and that – besides some obvious advantages – also brought a lot of issues, especially for the users who are used to the SharePoint way of things. No workflows. No permissions management. No integration with the rest of the SharePoint platform (search, content roll-up, etc). Furthermore, lot of standard Access functionality was not present in the Access Services, so users had to power-up the Access Client to get those features (running reports being the most prominent one, and even that is not possible for the Store-enabled Access Apps). All that has influenced that the adoption of Access Services and Access Apps in SharePoint never really takes off. Access Services and Access apps have always been a niche in SharePoint.

What we notice in the recent time, is less and less talk about Access Services from Microsoft's side, so it is a fairly safe bet, that Microsoft will not be investing that much in Access Services and Access Apps in the near future. Furthermore, on March 27th, Microsoft has announced that they will be removing Access Services and Access Apps from Office 365 – SharePoint Online offering by April 2018. If you have already set on Access Services, and build your solutions there, here we are going to talk about possible way out of that situation: using skybow Solution Studio Online solutions to replace the old Access Apps.

What is skybow Solution Studio Online?

skybow Solution Studio Online is the abstraction layer between SharePoint platform components (web parts, application pages, lists, items) and the business solutions that enterprises need. It is a clockwork of different internal mechanisms, which is helping enterprises to create structured data, processes on that data, and visualization (UI) and reporting on that data, with as little coding as possible. It is fair to say that skybow Solution Studio Online is an environment for rapid creation of business solutions on top of Office 365 - SharePoint Online (as of now), and very soon SharePoint Server 2013 and 2016 (on premises). Using skybow Solution Studio Online, developing solutions like "Request for Leave" becomes a straight-forward process which can be implemented by functional consultants, without (or at least with very reduced) involvement of developers. This drastically decreases time needed for development of such the solutions (up to 85%).

In the next few chapters, we will give you a high-level overview of example "Request for Leave" solution development, and how it can be easily built with skybow Solution Studio online, instead of Access Services.

![skybow® logo]

Why is skybow Solution Studio Online the right way out of Access Services pitfall?

While skybow Solution Studio Online offers all the functionality that Access Services have had, it in the same avoids all the above-listed problems they brought along, including:
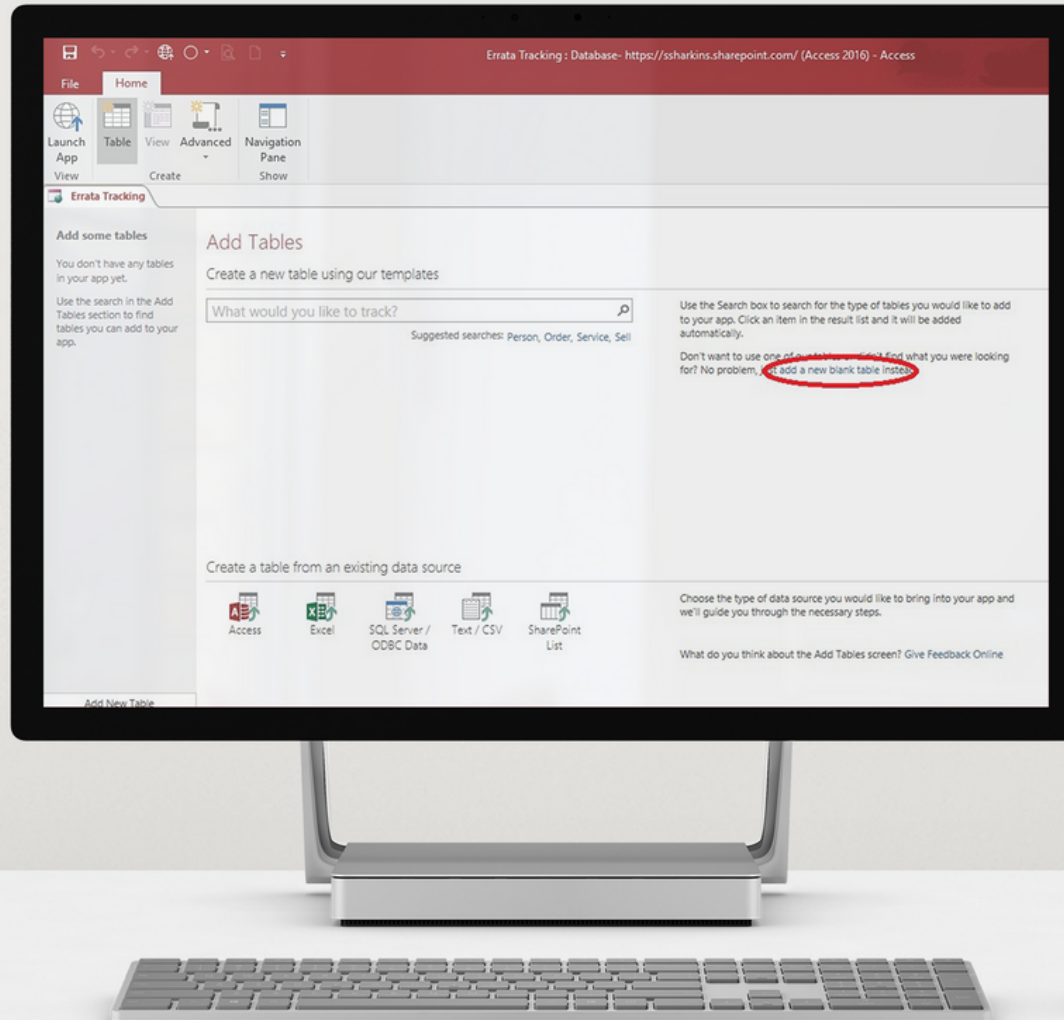
- *skybow Solution Studio online forms designer is equally or more powerful then Access Services forms*
- *The data remains in the lists, and it is not stored in a separate SQL database (which was adding an additional layer of complexity in management, governance and operations)*
- *As such, this data is accessible and interoperable with all other SharePoint Services, including search, content aggregation and roll-up, etc.*
- *Integration with existing workflow engines, like SharePoint Workflow and Microsoft Flow*
- *Business Logic through skybow solution Studio Online Actions*
- *Background processing through skybow Solution Studio aggregations, metadata inheritance, and scheduled and conditional actions.*
- *Powerful JavaScript-based expression language instead of Access Macros*
- *Fully aligned with SharePoint security and permissions, including groups, and list-level and item-level permissions.*
- *Reporting*

Let us take a short look at the process of changing Access Apps with skybow Solution Studio solutions, and what is the best way to proceed.

Data modelling

Data structuring in SharePoint works through lists and document libraries, which can be connected through lookup fields. This is very different to Access Tables, which are, in the case of Access Services, stored in a separate SQL database. Not having separate data store, means that data used by a business solution is accessible by all other SharePoint services, like search. What skybow Solution Studio Online adds to that, is fine data structuring, master–detail relations, and intelligent data filtering, aggregation and validations. This is something we in skybow call "Dossiers".
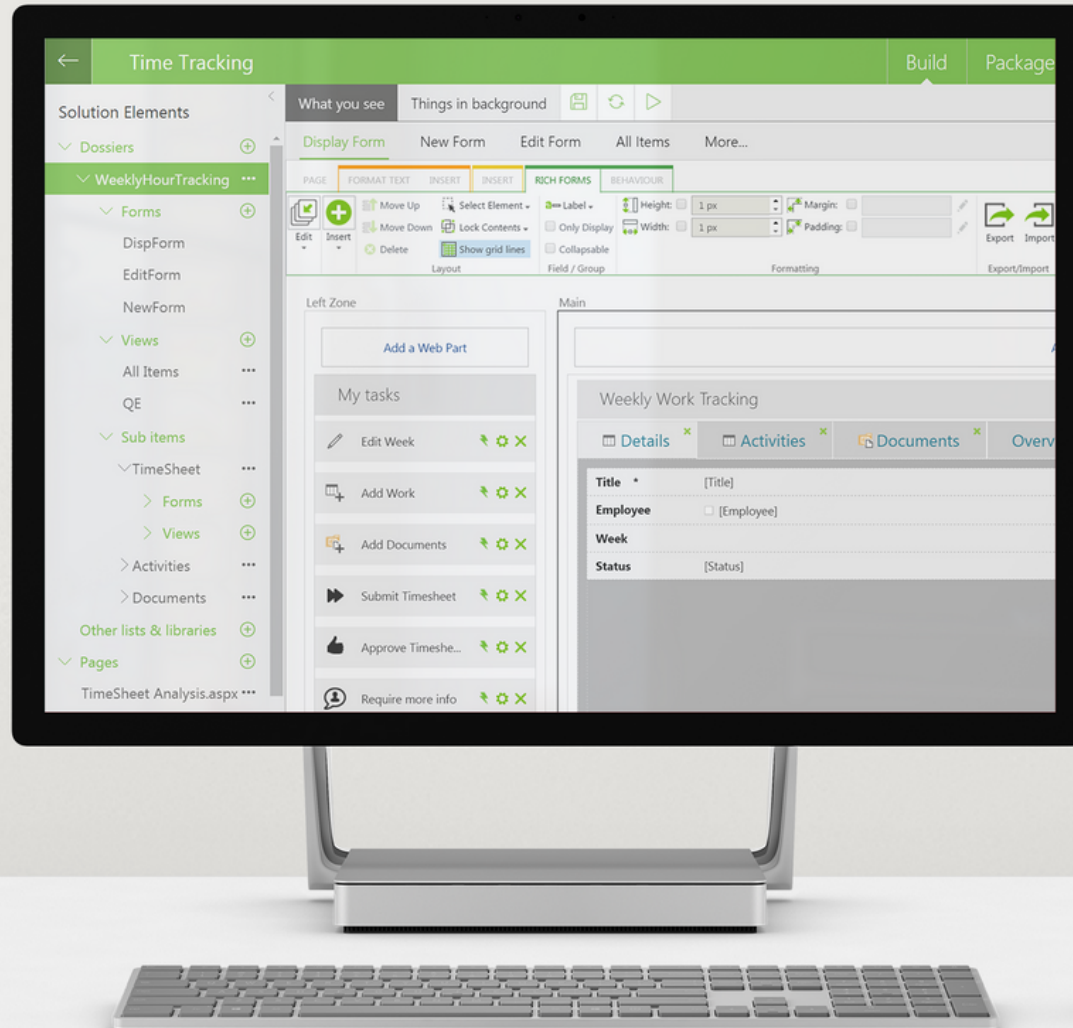
With "Dossiers", you can easily model data structures needed for the "Request for Leave" solution: list of employees, their superiors, their requests, and requests approvals or rejections. With skybow Solution Studio Online, you are able to immediately define totals and aggregates on that data, so enterprises can immediately know how many requests for leave have been submitted, what is the approval rate, how much of those are still waiting for approval etc.

The best is: skybow Solution Studio Online does not mess with the data, does not leave any "dirt", nor includes 3rd party systems. Everything is stored in SharePoint lists and libraries, and all the customizations are just client-side technologies like JavaScript and CSS. This lets your data to remain "clean", easy to migrate and manipulate at some further point of time.
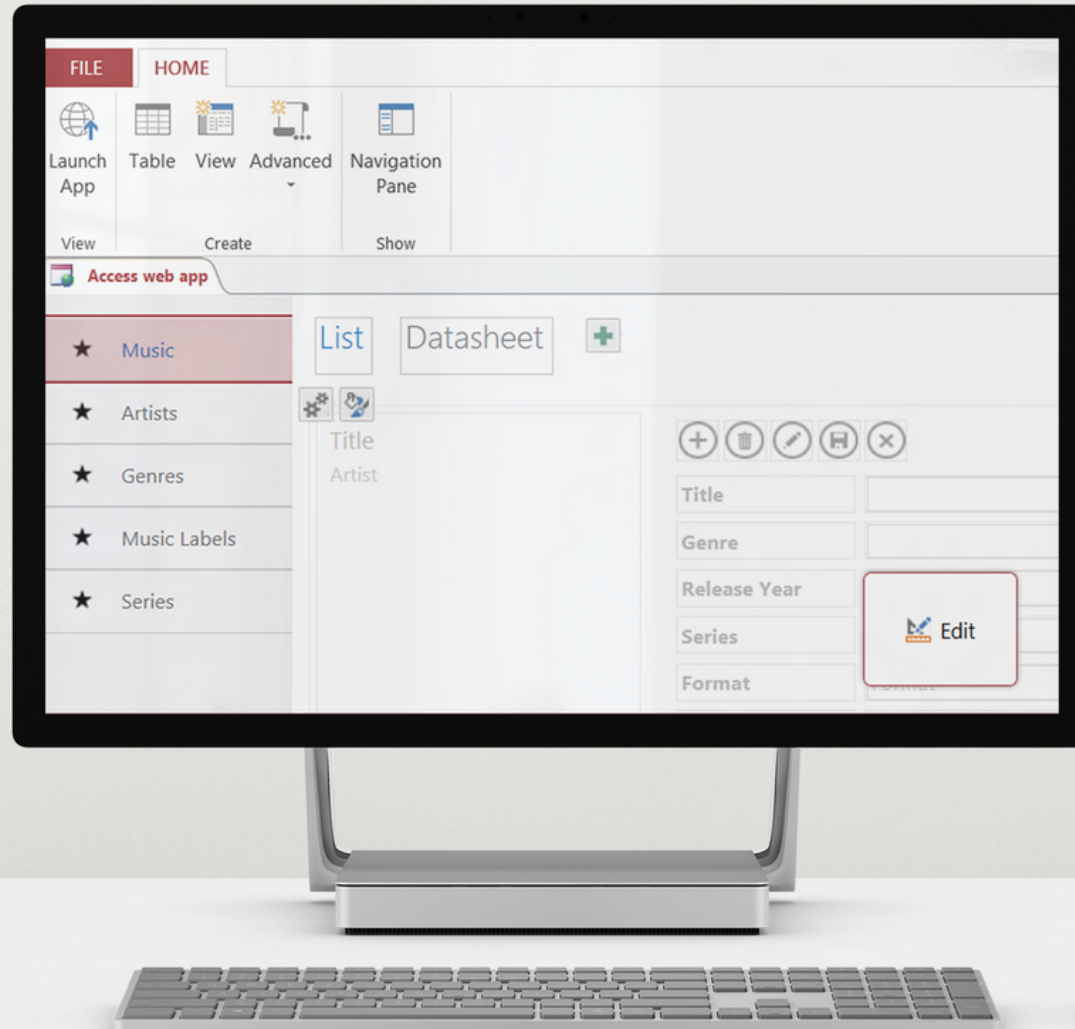
Creating "dossiers" in skybow Solution Studio Online is a very easy and intuitive process. You can use existing lists and libraries from a site, or create new ones directly from the dossier creation environment. Creating relations between lists and libraries (which results in creating lookup fields) is simple, intuitive and fast, at least as much as creating Access Tables and relations among them in Access Apps.

User interface

Once the dossiers (data structures and data model) have been created, the next step is creating user interface for the solution. User interface is the first thing that users see, and it is one of the decisive factors in solution adoption and acceptance. If we think of that "Request for leave" use case, users will need data entry forms for entering their leave requests. SharePoint offers linear entry forms out of the box, which is not always the most convenient way. Grouping the fields, separating them by tabs, and making fields visible, or enabled, based on the current user's role, would be much better way – this is where skybow Solution Studio Online comes to function, to fill that gap.

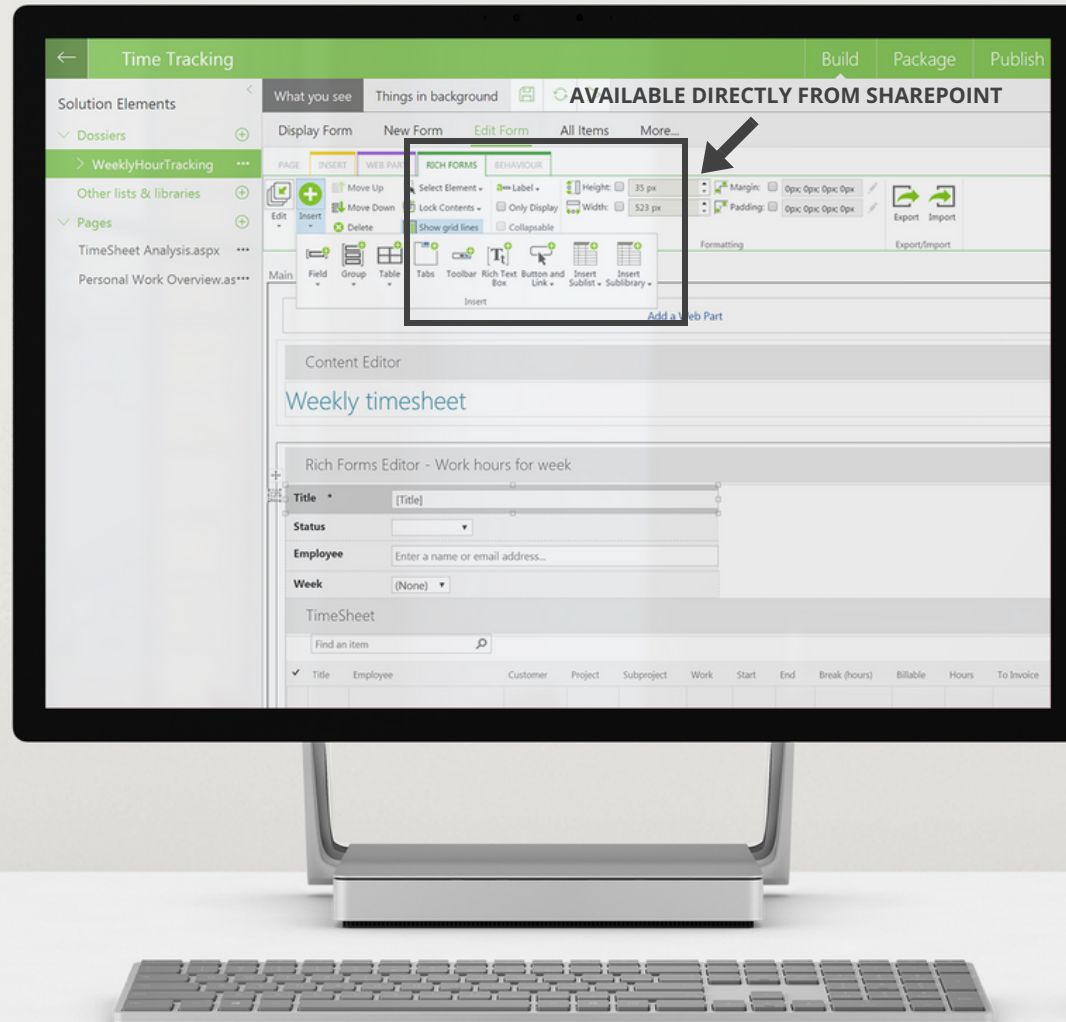creating form layouts and menus in Access Services

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Visual indication about number of the days which can be requested for leave, and form validation that would prevent user to request more days than she is entitled to, would further increase the solution adoption and acceptance, and decrease the unnecessary processing steps. While this is not easy to achieve with out-of-the-box SharePoint functionality, and it is barely possible using Access Services Macros (or doing advanced development with SQL queries or VBA in Access Client), it is fairly easy with skybow Solution Studio Online: user interfaces can be well designed, dynamic and helpful to the user in every possible way.
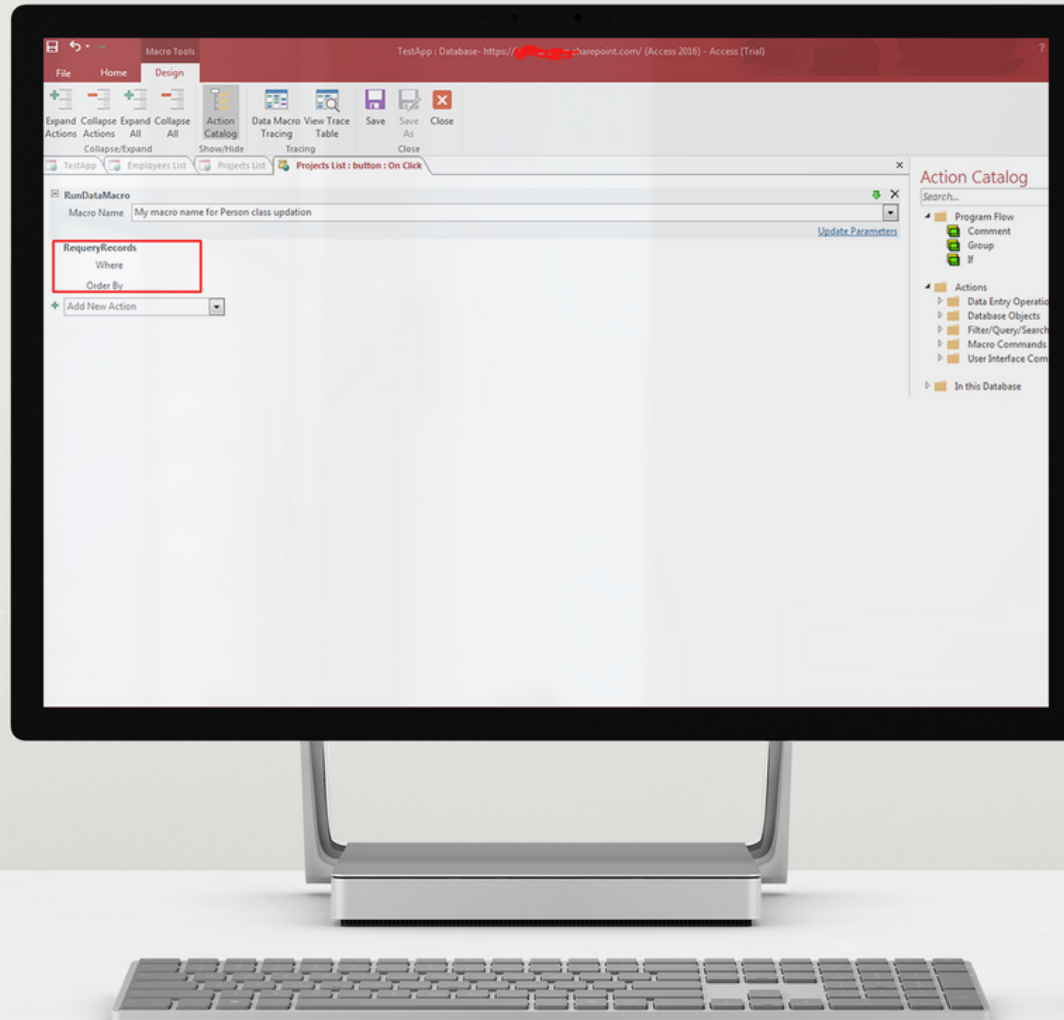
creating form layouts with skybow Solution Studio Online

Use-case	Access Services	skybow Solution Studio Online
Form designer	Access Form Designer Complexity: low	skybow Rich Forms, a part of skybow Solution Studio Online Complexity: low
Field grouping	Not possible with Access Services	Groups, collapsible groups, tabs, tables and similar advanced field grouping controls Complexity: low
Field behaviors	Custom macros code on Access Form Complexity: high	Simple but powerful skybow Expression Language Complexity: medium
Form validation	Custom macros on Access Form Complexity: high	Simple but powerful skybow Expression Language Complexity: medium
Form Actions	Custom macros on Access Form Complexity: high	skybow Action Buttons and links, with predefined and custom actions. Complexity: medium

Data processing

Once the data has been entered, the next step is it's processing. With skybow Solution Studio Online, this is done through actions, stages and expressions.

If we get back to our "Request for leave" solution, after the request has been entered, few things have to happen. An email needs to be sent to the superior, informing her about a new request for leave. If, by some chance, superior has not processed the request, a summary mail with all pending requests has to be sent as a reminder the next Monday. After superior initially approves the request, there might be additional check – preferably automated - that not more than a certain number of people from the same department can take a leave at the same time. After that, it all has to go the HR department for further processing. During all that process, the employee should be informed of the status of the request – if it has been approved, sent to HR, or declined.
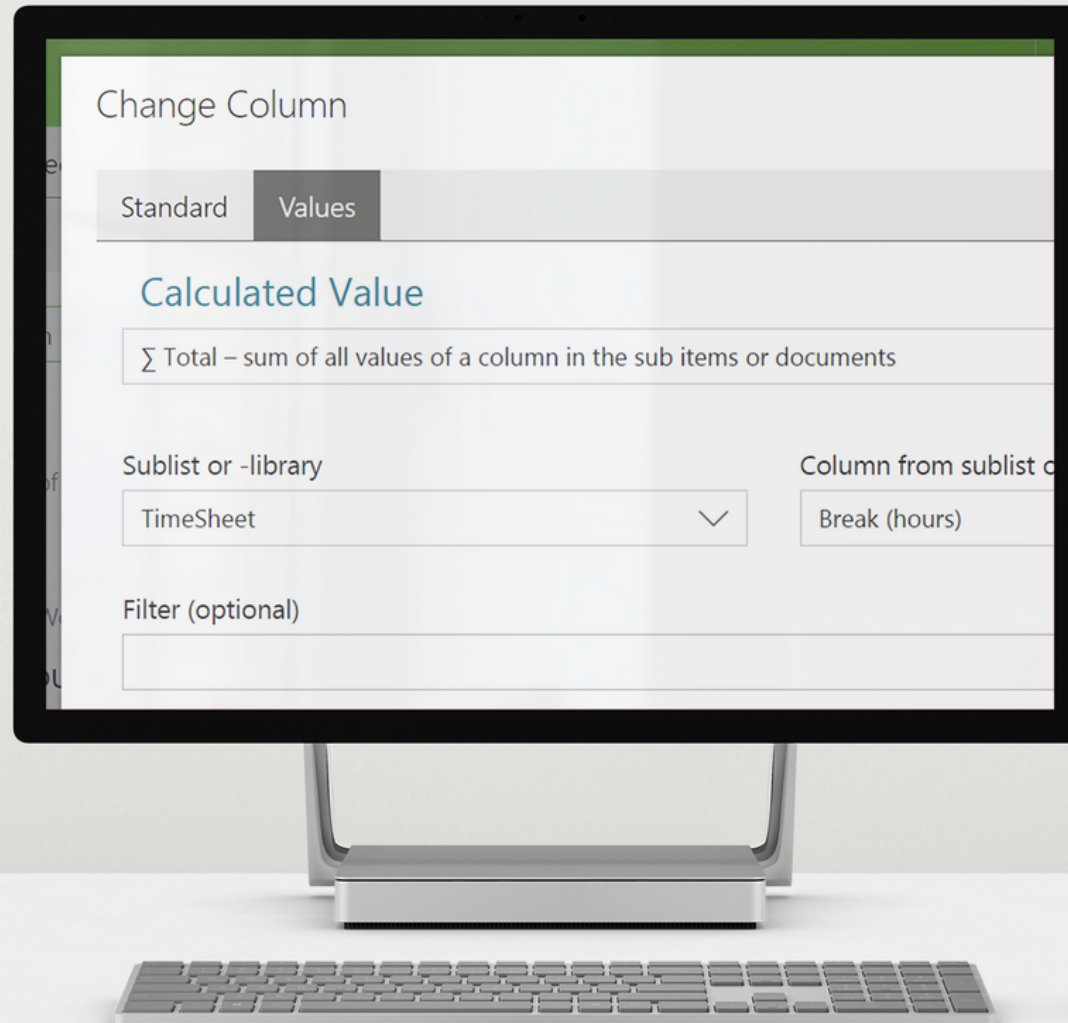
skybow Solution Studio Online helps you to fully automate this process. Through aggregations, metadata inheritance and actions, this is possible – so to say – out of the box.

Aggregations are there to aggregate list data into another list. In our virtual leave request scenario, we would want to aggregate number of the leave requests, per employee, per department and for the whole company somewhere. This is what aggregations are for. Beside predefined standard aggregations (Summary, Count, Average, Minimum and Maximum), it is possible to use skybow Expression Language for the own aggregation formulas.

Change Column

Standard | Values

Calculated Value

∑ Total – sum of all values of a column in the sub items or documents

Sublist or -library | Column from sublist
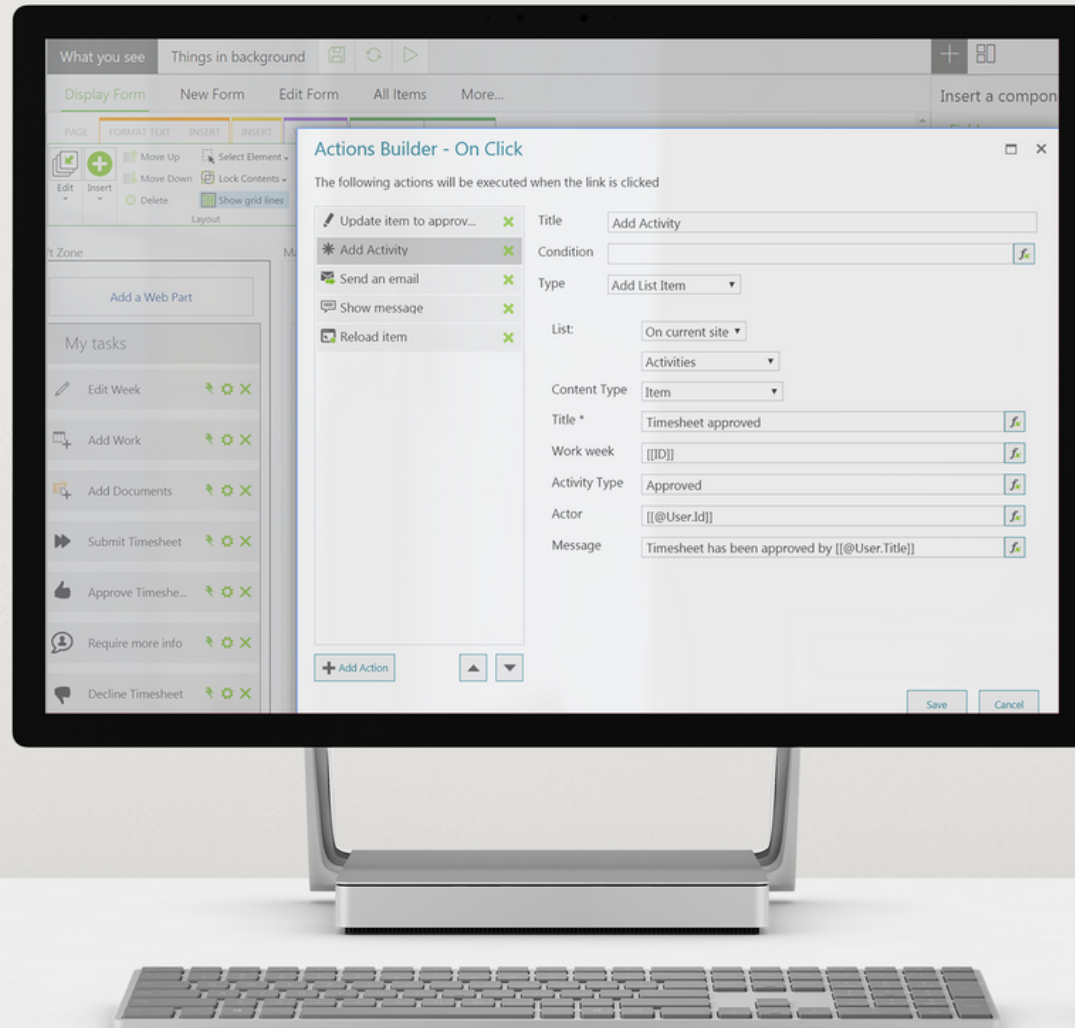TimeSheet | Break (hours)

Filter (optional)

Metadata inheritance is, so to say, an opposite process of aggregations. With aggregations, we aggregate data from bottom to top, and with metadata inheritance, we push (inherit) data from top to bottom. This is very often needed in all "case file" scenarios. For example, our leave-request solution might include functionality for medical absences. In lot of countries, a doctor's approval is needed for requesting a medical absence, and it needs to be uploaded somewhere. But – those doctor's approvals are not later findable by SharePoint search, since they don't contain any metadata: all the metadata is set on the "parent" list item. Metadata inheritance from skybow Solution Studio Online enables you automatic "push" of the metadata to such the documents, so that they can be easily findable by SharePoint search.

Besides automatic data aggregation and metadata inheritance, the next powerful vehicle in skybow Solution Studio Online business processing are actions. We differ between three different types of actions: action links and buttons, conditional actions (coming soon), and scheduled actions (coming soon). Action links are triggered manually, by clicking on a link or a button. Set of actions which can be performed is very exhaustive: starting a workflow or Microsoft Flow, adding, updating or deleting data, sending emails, executing custom JavaScript… All actions are powered by powerful skybow Expression Language, which enables all kind of data manipulation. This way, practically every imaginable processing is possible with that data.

Besides link actions, very soon we will be introducing in skybow Solution Studio conditional actions, and scheduled actions. Conditional actions are executed if something happens in your solution – like sending that email to the superior after the request for leave has been submitted. Scheduled actions are performed in the exact time intervals – like sending that summary leave request report every Monday.

By combining those three types of actions, and expressions which can be used within the actions, a powerful clockworks of background data processing are achieved, which enables enterprises to build really powerful business solutions. Based on the conditions mentioned above, there is something we call "stages". Stages will be visual representation of current state of the process, which helps users to identify what to do next. In this "Request for Leave" solution, we will want to show the current status of the request to the user through the stages.

Compared to Microsoft Access and SharePoint Access Apps, this is a huge improvement. In the Access development, you would traditionally go for SQL and VBA development for every aggregation and data replication. In Access Services, not even that is possible, and solution builder is limited to Access Macros. Conditional would not even be possible without manual fiddling with SQL database triggers, and scheduled actions would not be possible with Access Services without Azure Automation talking to the SQL Server database, and that is only possible for hybrid apps (where the SQL Server can be accessed), and not for Office Store enabled Access Apps. Using skybow Solution Studio Online makes those tasks very simple, and intuitive.

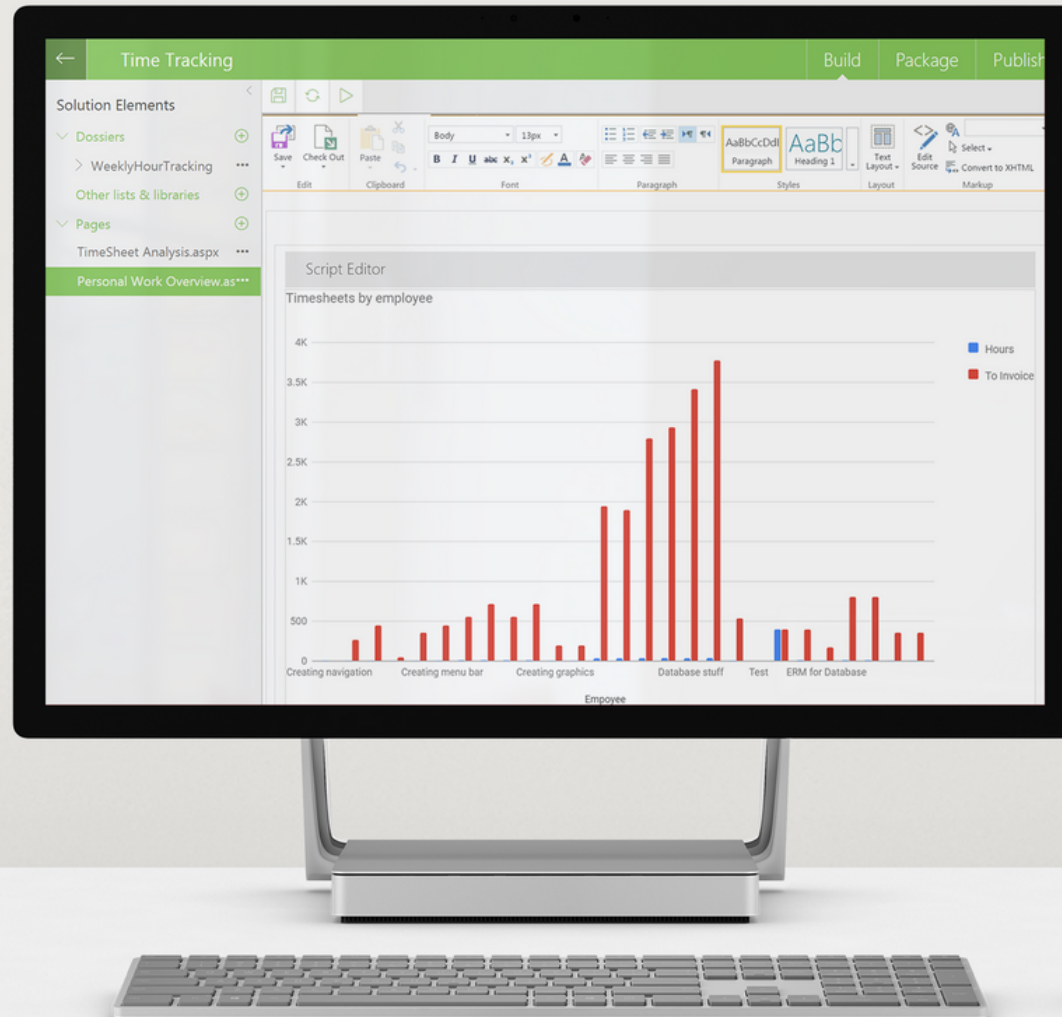| Use-case	Access Services	skybow Solution Studio Online
Data aggregation	Partly possible with Access Macros Complexity: high	Automated data aggregation Complexity: low
Metadata inheritance	Partly possible with Access Macros Complexity: high	Automated metadata inheritance Complexity: low
Action Links	Partly possible with Access Macros Complexity: high	Simple but powerful skybow Expression Language Complexity: medium
Scheduled Actions	Not possible in Access Services. High expertise and administrative rights needed to do this on Azure Level Complexity: not possible / high	Simple but powerful skybow Expression Language Complexity: medium
Conditional Actions	Not possible in Access Services. High expertise and administrative rights needed to do this on database level Complexity: not possible / high	skybow Action Buttons and links, with predefined and custom actions. Complexity: medium
Stages	There is no process visualization with Access Services Complexity: not possible	Simple integration of process visualization into solution Complexity: low
Integration with workflows and Microsoft Flow	Access Services cannot integrate with SharePoint Workflows or Microsoft Flow Complexity: not possible	Simple Workflows and Flow integration through skybow Action Links Complexity: low

Reporting

The last bit in the solution usage cycle is reporting. SharePoint itself does not offer any reporting capabilities. SQL Server Reporting services can be used for complex reporting, and BI dashboards can be used for visualizations, but simple reporting based on SharePoint data is not possible out of the box.

With Access Services, you can use Access Reports, but only in the hybrid Access Apps, and store-enabled Access Apps have no reporting capabilities. Even for hybrid apps, creating and running reports is not possible from the web interface - your users need to run the Access Client to start the report.
The second option is creating SSRS (SQL Server Reporting Services) reports and including them into the Access App, but that is not an easy task to achieve, and, as well, not possible with Office Store enabled Access Apps.
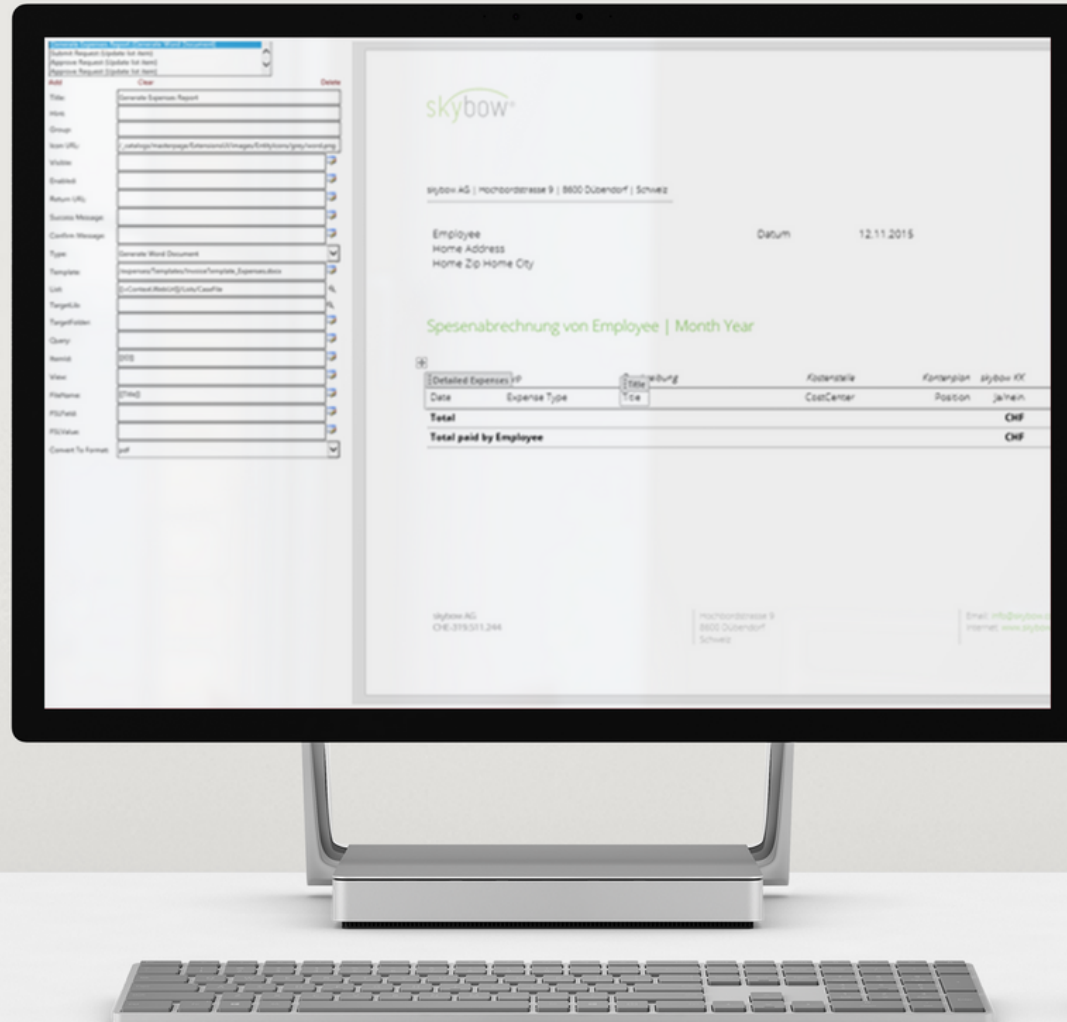
With skybow Solution Studio, including PowerBI reports on site pages is a very easy thing achieve. Furthermore, including charts based on SharePoint data – including Google Charts – is also fully supported. On that way, integrating good looking dashboards into a solution is a fairly easy thing to achieve.

Very soon, we will present a Document Generation features for our skybow platform, which will enable users to design rich reports in Microsoft Word, which will include master-detail relations and data recalculation directly in the reports. It will be possible to download such created reports either in Word or PDF format, or to store them in a document library.

Use-case	Access Services	skybow Solution Studio Online
Integrating reports	Creating and running Access Reports in Hybrid Access Apps (not for store enabled apps), requires Access Client Complexity: high	Integrating PowerBI reports Complexity: medium
SSRS (SQL Server Reporting Services)	Possible with Hybrid Access Apps Complexity: high	Possible with skybow Solution Studio Online Complexity: low
Creating report documents from business solutions	Creating and running Access Reports in Hybrid Access Apps (not for store enabled apps), requires Access Client Complexity: high	Document Generation on skybow platform is coming soon. Complexity: simple

On the end

skybow Solution Studio Online is an end-to-end rapid solution development platform for SharePoint Online and soon for SharePoint Server. The „Request for leave" use case, that we took as an example here, with two-step management approval, a decent UI, and management reporting, would not be easily possible with Access Services, or at least with lot of background coding. With skybow Solution Studio Online, it is possible to develop a fully functional leave request solution within hours. And this is the major benefit of skybow Solution Studio Online: development, deployment and change response times are decreased by 85% percent in most of the cases. With SharePoint Access Services and Access Apps being deprecated and removed from SharePoint Online, skybow Solution Studio is the perfect match for your business solution needs on top of SharePoint Online and SharePoint Server.