Written Project Report on

Photovoltaic Systems for Private Customers

by

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Introduction

Project Context and Problem Definition

As the solar energy industry continues to expand, increasingly more firms are grappling with the challenges of everyday operations, as they attempt to track and maintain essential field data gathered in site visits (Dewi, 2024). Even in the cases that they have well equipped teams and that there is growing customer demand, in many organizations it is difficult to handle centrally and conveniently the information of the surveyed sites, thus the much likely results are delays in responses, misunderstandings or installations which are poorly planned. The process of documenting information is manual and the records are all over the place making it hard to monitor efficiently type of roof, energy requirements and timelines of installation at different customer locations (Acton et al., 2022). Such barriers directly interfere with the quality of services provided as well as the planning of the operational process and it is thus important to come up with a simplified answer. Where there is no single place that enables the details of the survey to be captured on real-time, be editable at a later date and can be used to prepare helpful reports, there are gaps in the implementation process that are literally seen.

Objective of the Project

The aim is to develop an effective, data-driven system which enables the real time gathering and transparent reporting of site survey data. The type of roof, energy usage consumption, and installation timetables are the most important information that this system saves in an easy form and format. All information becomes available in several seconds, and well-composed reports assist in drawing conclusions in a series of projects. The dashboard serves as a single point of information conversion where data becomes context based and simplified choice can be made (Jarke & Macgilchrist, 2021).

Preparations and Planning

To establish the base of this project, the initial step will involve the development of a specific object within Salesforce which shall be termed as site survey which contains all the necessary information gathered in the field. The object is a digital folder where every new survey entry will be stored with a specific set of values (Dinneen & Julien, 2020). In addition to this object, there are a number of custom fields that are included in defining important variables like roof type, energy consumption in terms of kilowatt-hours and the planned date of installing the solar panels. These areas facilitated the survey analysis by classifying the survey into simple categories which are later used in creating structured reports. After these set-up activities are done, we look at the

configuration to see that all the elements aid the project purpose. These elements are clearly formed as can be seen in screenshots taken in the process and the planning is a success.

Methodology and Tools

Salesforce is chosen on the basis of its robust, cloud-based infrastructure and easy to use interface that suits perfectly with the demand of fast-paced projects that need to be customized fast (Stefaniak, 2023). It can use the custom layouts with the use of its Lightning App Builder and meaningful charts by using Report Builder. The tools coupled with dashboard capabilities provide a stable platform to present and access the data of the solar site survey and manage it in a manner that facilitates the real-time decision-making of every implementation process.

Implementation, Evaluation and Reflection

Project Setup

Once the required custom fields have been created, the next thing that should be done is to create a specific custom tab to access the Site Survey object easily. As a shortcut, this tab helps the user to view, add, or edit survey records without going too far down the object structure in order to see survey details. This tab enhances the interactions and data management of the Salesforce platform given the visual clarity that it provides to the user. The tab is represented with a familiar icon and a name label and shows up as seen in the interface shown above, as a means to differentiate it against the default system objects and other modules available in the Sales App.

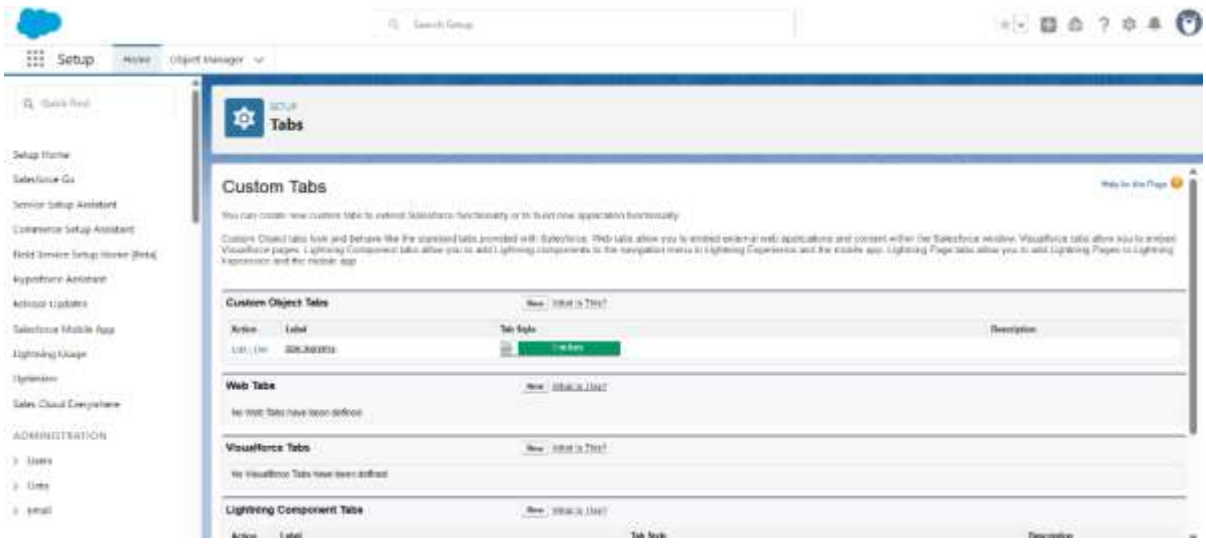

Figure 1 custom tab (author work)

After the successful creation of the tab, its existence is confirmed in the Sales App by examining whether it fits in the already prebuilt navigation bar without pelting back. This transparency makes sure that the survey feature will be visible to end-users all over the application without the need to have the feature configured manually. The availability of this tab as part of the navigation framework enables its application without obstacles when common sales or operational processes are being run. The tab of the of the confirmation named as the Site Surveys is critical in terms of integrating the newly created object into the whole Salesforce system. It connects the backend organization of the object with an accessible frontend that embraces the work with records, entering forms, browsing old data and spinning report constructors. The tab fulfills technical requirements that needed to be done before one can start entering data and conducting analysis throughout the surveys conducted by the organization (Mahlamäki & Nieminen, 2020).

Survey Data Entry

Following the preparation of the platform and interface, the subsequent step is concerned with the placement of real-world survey entries in the Site Survey database in order to make it meaningful. Various records are entered to take the real field survey conditions in which the details of sites, technical measurements as well as dates of schedule are recorded in the physical surveys. The variety of records enables the reporting structure to produce insights across various data points, putting both the individual value monitoring and the recognition of the overall trends to the test (Raggless et al., 2024).

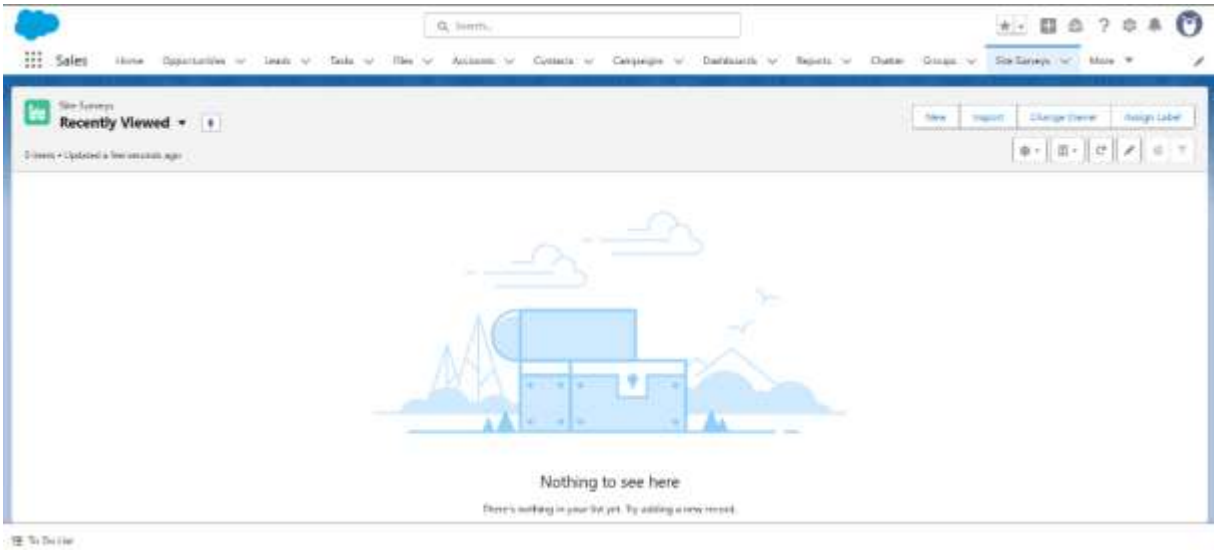

Figure 2 Survey (author work)

The records that is filled in the system vary in regard to locality, energy requirement, and setting up strategy so that the solution can be assessed against achievable use cases. Every survey listing gets its own record within the Site Survey object and has definite numbers concerning the type of the roof, the usage of energy, and the schedule of installation. The entry screen provides a set of arranged fields which after being set in line with the very custom data points set at the beginning makes the data to be in a standardized form. An example of one of the survey entries is the evidence of a flat roof structure that is titled as Survey Ali Villa and has estimated energy consumption of 4,800 kilowatt-hours with an installation date scheduled to be on the 28 th of August 2025. The record is a good test scenario to know not only the data capture abilities but also the downstream dashboard visualization or report generation. It enables a deeper picture of the flow of the information that is gathered in the form submission and presented in the form of viewable analytics in the Salesforce. The right entry of survey records of different types with those represented in the screenshot proves that the system properly stores values, presents them in real time and that there is consistency between all the tabs and modules.

Report Creation

Roof Type Report

The creation of the Roof Type report is also an important analytical feature that will help to comprehend the distribution of various types of roofs in the locations where surveys are conducted. This report will collect the data of the cell Roof Type collected during the Site Survey records and compile the data by placing them in a structured manner, so the frequency and variability of each kind of roof become visible. In the case of the roof, whether the roof is colored as flat, pitched, and gable, each appears to have clarity to guide in planning hardware needs and ways to install them.

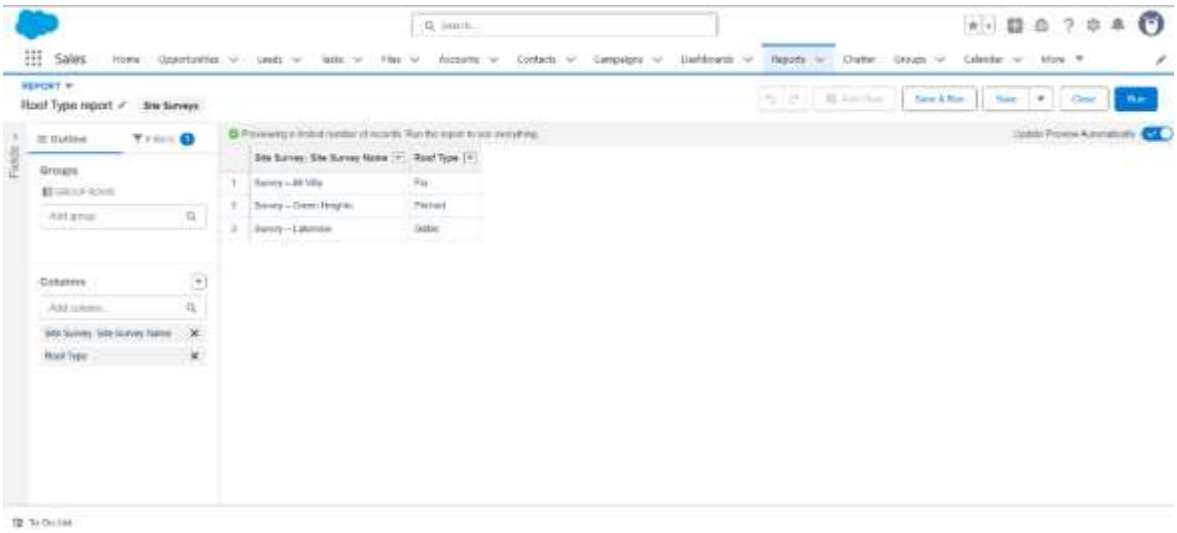

Figure 3 All reports (author work)

In the report interface, the ability to sort the results based on site name makes it easy to distinguish between lists of specific property entries and their roof type. Such a detail is particularly useful to technical teams and installation planners who need to be informed about the structure of roofs to know off which hardware to use. The graphic design of the report makes the patterns to be visible such as repetitive use of some roof styles into some neighborhoods or complex of buildings. As demonstrated in the output of the report, one row represents one survey record, and there is a site name in the row as well as the roof style assigned to the site. This congruency aids in the development of operational clusters in the implementation of resource allocation and field workforce. Generally, the Roof Type report helps the decision-making process to become much more understandable by transforming inputs in a coherent and actionable form.

Energy Usage Report

The Energy Usage report is designed to make an effective comparative review of electricity consumption possible in all the places surveyed. It is prepared by collating data on the custom field titled Energy Usage (kWh) and comparing it against corresponding records in the Site Survey and creating coherent visualization of the consumption trends. Identifying the energy-intensive sites and putting them first in the planning is achievable when listing each of the surveys and the number of kWh associated with them in the report.

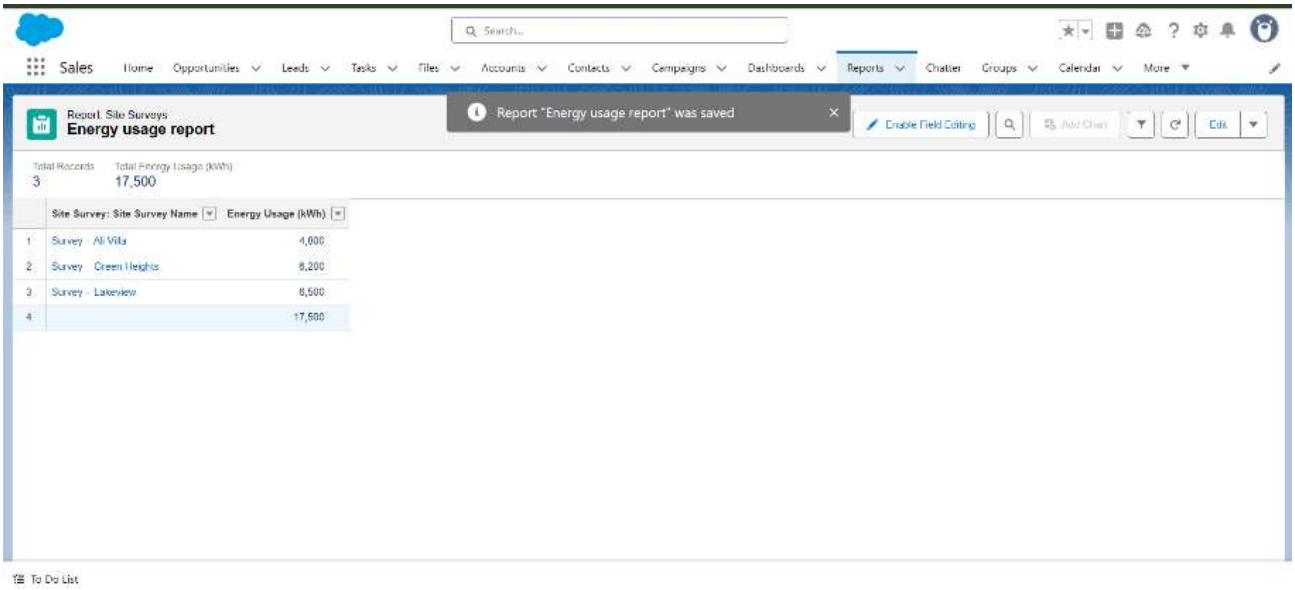

Figure 4 Energy Usage Report (author work)

By sorting the entries according to energy consumed, immediate identification of the areas of high and low consumption can be made and this helps to determine availability during the implementation of particular solar panels combination or storage installations. The numbers are a good indicator when it comes to estimating the installation costs and the capacity that should and must be used in generating energy per site projected. This report interface is numerically more accurate and is readable and suitable in the technical analysis and presentation to the clients. Every row of the report shows the one-site survey and its entire power demand, which is transparent among various parties belonging to implementation planning. Such organized foresight simplifies the processes by minimizing the guessing game whenever performing an early-stage assessment as well as creating space to incorporate evidence-based decision-making (Bulleri, 2023).

Installation Date Report

The Installation Date report is created to provide a scheduling view and time tracking of all site surveys found in the Salesforce system. Extrapolation of the custom field, which is the Installation Date on the Site Survey object makes this report a comprehensive listing of the timeline each of the solar installations would be completed. This structure facilitates effective management of workforce and guarantees that there is the possibility of avoiding the situations of overlapping installations as apparent in effective forecasting.

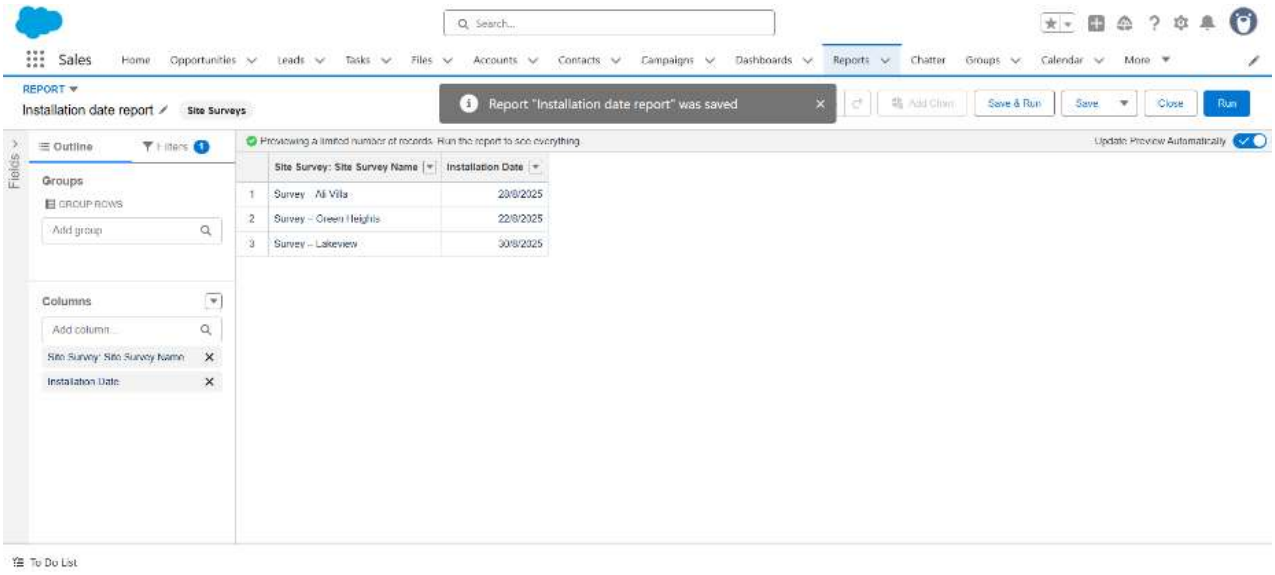

Figure 5 Installation Date Report (author work)

When the installation entries are ordered by date, the report also serves as a prospective calendar to an operational group that may have multiple field visits at once. In every line, the Site Survey name and the date of start of installation are mentioned so that even months before the actual start of installation, the planners can synchronize logistics, inventory and the people. All the delays, bottleneck, or priority locations would be immediately identifiable as soon as the report is updated. Installations are usually weather sensitive, permit sensitive and site-ready sensitive, so a date centred report is useful in adjusting to these factors quickly. This report is useful in assisting the tactical execution and strategic review as it acts as a communication liaising vehicle between the technical planners and field units (Langenwalter, 2020). The Installation Date report helps in strengthening coordination between departments, preventing conflicts, and enhancing structure due to its simplicity and usefulness.

Dashboard Development

The dashboard aspect of the Salesforce implementation is of essence in converting raw survey data into intelligible, and actionable information, which should be in a visual form (Madhumidha et al., 2025). The dashboard is a custom dashboard titled SwarmPV Dashboard that would exhibit three well-constructed report widgets where each widget shows a single metric or indicator of the various surveys that can be deemed to be crucial in terms of project monitoring and planning. This visual element enables key stakeholders to obtain an instant view into the trends of an operation, survey progress, and future installation requirement with a single glance.

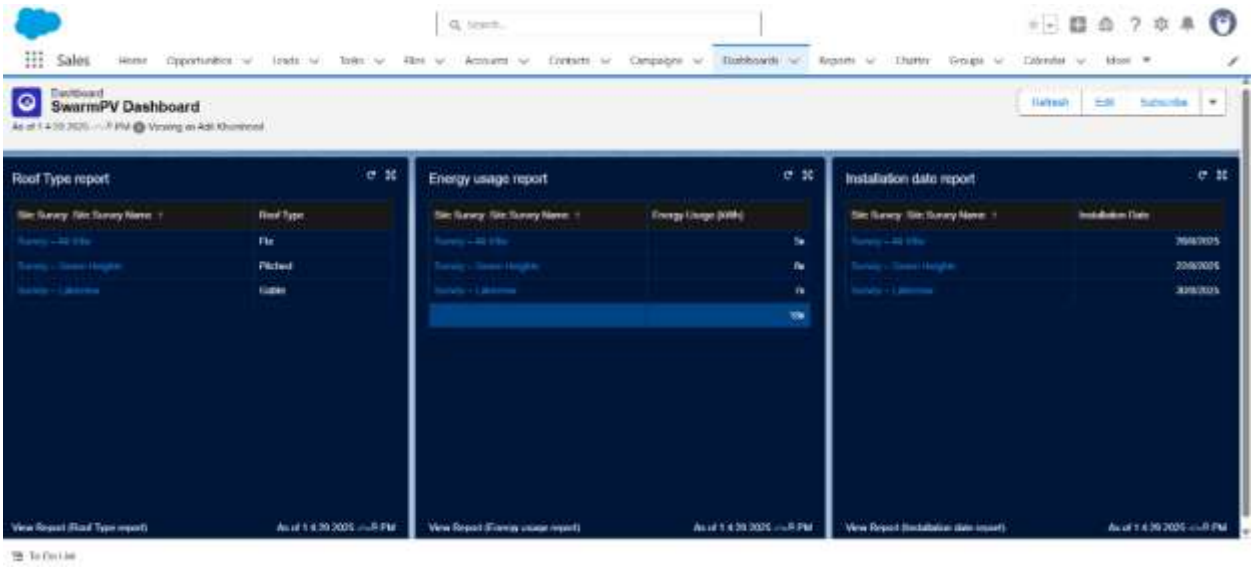

Figure 6 Dashboard (author work)

Its first dashboard widget aggregates the information on the report about Roof Type and displays how the roofs can be distributed, according to the sites that have been surveyed. The component will further allow the detection of trends of the roof types to aid the technical teams in calculating panel mounts, safety equipments, and structural compatibilities with respect to the common types of roofs identified through the sites visits. The chart layout is used to make this comparison easier by clustering records of surveys. The second element of the dashboard draws on the Energy Usage report in order to display the kilowatt-hour needs at each location. This section of the dashboard helps in comparing electricity demands in multiple properties, which is essential in allocating solar panel systems, calculating inverter sizes, or offering advice to the clients regarding the cost of installation and energy production. Every bar or line in the chart is a concrete measure that is recorded in the Site Survey records and that a direct connection between data entry and graphical display can be realized.

The third widget is a chronological chart or graph showing data provided by the Installation Date report to allow the future work schedule of sites. It is the equivalent of a live scheduling feature that gives a foresight of what to schedule and not to encounter any bottlenecks and overlaps during fieldwork scheduling. Because of dynamic dates, the dashboard will illustrate the changes, which enables the project managers to be proactive rather than reactive. The dashboard, which is a combination of the three mentioned components leads to a very informative and useful dashboard that can be helpful in both the strategic and operational decision-making process (Zingde & Shroff, 2020).

Chatter and Collaboration

Implementation of Chatter in the Salesforce ecosystem creates the layer of powerful communication to enable project teams to make up-to-date updates and collaborate inside the premises (Stefaniak, 2023). Chatter allows the broadcasting of messages related to tasks in the individual records and this makes it easy to have the various departments aligned throughout every step of the solar survey workflow. In this implementation, the feature is utilized to post significant updates on the process of scheduling and preparing activities that are associated with particular survey entries.

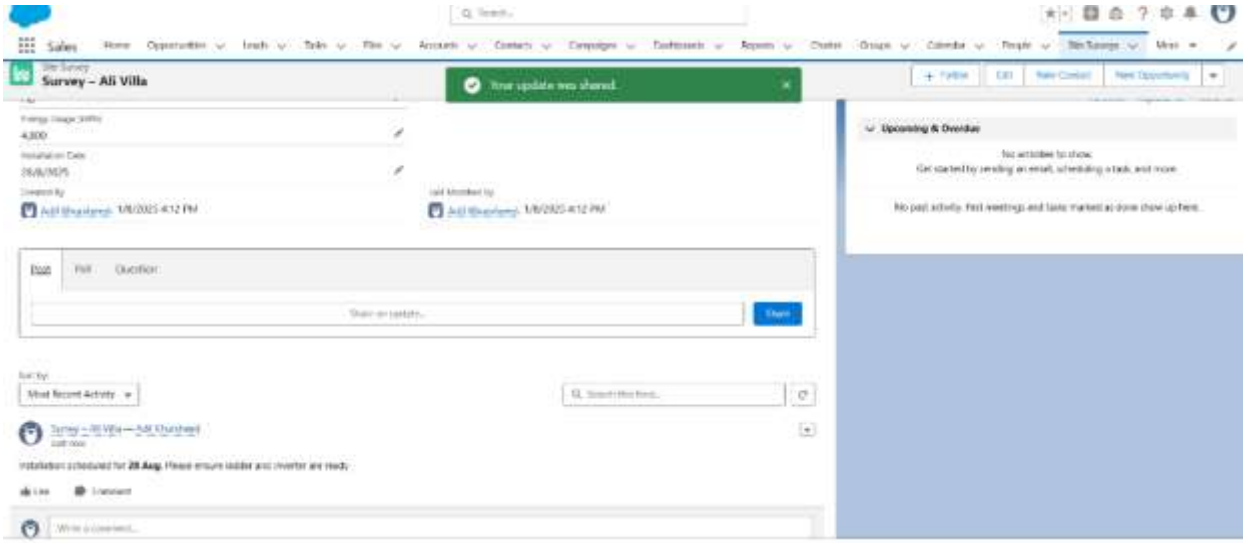

Figure 7 Chatter (author work)

One application of Chatter is a reminder post about the scheduled operation deployment that will take place on August 28. It is shown here in the feed on the right side of the corresponding Site Survey record, so it is always placed in context with respect to the records to which it relates. By so doing, Chatter dispenses with any other means of external communication and concentrates all the chats within the Salesforce ecosystem where every concerned discourse becomes available instantly. The post contributes to making the last-minute confirmation efficient and minimizes miscommunication on the project dates or site-specific requirements. This minimalist yet powerful technique of collaborating assists agile activities and particularly in industries that are predominantly field-based, such as installing solar panels because timing and coordination plays a big role in the end results of the delivery.

Risk assessment and mitigation

Any digital implementation initiative is accompanied by risks that should be identified in advance and mitigated in systematic ways to achieve the stability of delivery (Latupeirissa et al., 2024). When working with this Salesforce-based solution in the context of the planning and configuration activities, there are some risks which will emerge and which would have derailed the course of the work unless countered. The first risk is the very possibility of misconfiguring the custom object or fields, particularly when it comes to dependencies such as availability of reports or dashboard relation. A minor detail, like failure to enable the option to allow reports, can lead to great delays because the object cannot be seen when creating reports. Also, there are threats to correctness and uniformity of data that will be recorded in the custom fields. The value of energy usage or incorrect selection of roof types can yield skewed results of the report thus providing the wrong conclusion. Since there is a risk of misinterpreting the data because the same project is focused on aiding field operations, any error in the interpretation can upset the functionality of the logistics and planning operations in the installation teams (Fearnley, 2022).

The user interface of Salesforce, though powerful, brings about complexity that would bewilder new users when it comes to the making of initial set ups. Each separate program, the App Builder, Object Manager, and Report Builder all must be known in order to use them effectively, and this is a factor in the likelihood of user error during setup and customization (Shahrasbi et al., 2021). To minimize such risks, preventative measures are implemented within the project to be established. A prior list of pre-configuration tasks is designed prior to creation of objects to ensure that reporting privileges, field labels and data types are confirmed and approved. This list acts as an indicator in the course of the process The process of testing also takes place within a Salesforce Playground where bugs cannot affect the actual interface. Sandbox usage allows rectifying such points or testing, without producing effects on the final implementation (Seferi, 2025). Field purposes and configuration settings are also documented making it less confusing when revising or expanding in future.

Resources Planning and Efficiency

The effectiveness of this implementation relies not only on the proper configuration but effective management of resources, such as time, technical tools, and digital environments, as well. The whole solution can be built in the Salesforce Playground, so there will be no need to spend money on any ancillary infrastructure or even license purchase of certain paid software. In this way, it makes the project cost effective and technically oriented and yet provide full functionality without

financially relying on a third-party platform or on a cloud setup. In terms of time investment, the activity of custom field set up, object site survey creation, and report and dashboard preparation is extensive in terms of time commitment and is divided into several days. Configuration tasks take between half an hour and one and a half hours depending upon their complexity and troubleshooting activities, and further time is put aside to do visual patching up.

The user-interface delivered by Salesforce is heavy-laden with software tools but becomes productive when rudimentary navigation and operations are mastered. The field creation, tab visibility options and report filtering functions are working on the same interface which smooths out the collaboration among the modules. The Lightning App Builder and Report Builder to drive the execution of design tasks avoid the need to code of conduct any technical training in order to increase the development speed without sacrificing accuracy (Sunny, 2022). As well, efficiency also comes to life when considering how the solution enables reusability to be achieved based on varied business scenarios. The object structure, names of fields, and dashboard templates are designed in a way that is general in order to make the system flexible so that it can be adapted to other industries or other teams that require structured field data collection.

This implementation shows be a resource-conscious way of producing high-quality, professional results with low resource dependency and judicious use of development time, by leveraging native Salesforce features to make the most of available resources. This process and its products are not only focused on a one time run but it should consider scalability, sustainability, and transferability report.

Reflection and Challenges

In the process of carrying out the project, some technical and structural barriers arise that demand careful troubleshooting and flexible planning to ensure progressive stability. Among the problems that are among the first to emerge is the inability to create a report of the custom object called Site Survey. Along with efficient development of the object and related areas, no typings of available reports can be discovered in the development of the report builder at first. Lack of Site survey in the report type search does not further make the reporting module to be developed until there is corrective action.

The error is associated with the overlooked setup operation when creating an object, which involves turning on the report visibility of the custom object. This lapse in the process can be seen in the screenshot of the search field which is empty of corresponding report types. Upon coming to this realization, the settings of the object can be revisited and access to track feed and view

the reports can be made manually, instantly eliminating the problem and allowing the use of the object in terms of reporting functions. The other obstacle that is evident is on the last implementation stages when it comes to the preparation of building of the project dashboard. People are unsure as to whether dashboard creation is the final technical exercise particularly when there is the need to connect with the custom reports. This is where the interface offers minimum guidance and even if custom dashboard resources containing new objects have documentation, it is in bits and pieces.

The recommendation is to save all reports manually in the folder titled Private Reports and then use it by opening the dashboard creation interface. As long as this approach has been established to work, the reports would be visible and usable as an element of the visual dashboard environment. The dashboard has been constructed successfully with the three important metrics incorporated and the manual integration is a robust workaround. The project echoes the generally accepted best-practices of CRM implementation, specifically, the ability to identify business needs, configure tools, and data confirm structures the solutions with a data-driven output. This is also the structure and flow that is similar to the Salesforce App Cloud Framework that promotes speed, modularity, and engagement to the user. As a result of such a reflection, the whole development is identified as an entire, realistic, solution of field data management problems in the context of scalable infrastructure in the cloud CRM.

Conclusion

The adoption of a tailored Salesforce tool to control solar site surveys is evidence that digital solutions can significantly improve visibility and the quality of data. Roof types, energy usage intensity and the installation date at various locations are some of the critical details that have been captured effectively within the system. Every piece of data inputted is incorporated into a pattern wherein this could be used to analyze and plan in the future. The values are then converted into patterns via reports and dashboards, to inspire knowledge-based decision-making, and fulfil the initial objective set of capturing field data and converting it into an actionable intelligence. In the process, interaction with Salesforce will give an insightful experience about how custom objects, report types, and tab settings influence the Information flow as well as the user experience. A more encompassing technical acquaintance with the idea of a modular CRM architecture is attained by overcoming the obstacles of interface work and configuration errors. Future enhancements can consider automation based on the process flows, creation of alert warnings when approaching critical values, and most importantly, refinement of the user interface

to suit the field users who use the mobile apps to communicate and provide input to the user onsite.

The project has high applicability in any subsequent project of customer relationship management, energy business operations, or the adoption of SaaS solution in resource-consuming industries. Steps used in making the configuration, the objects structure, and the dashboard formats employed in this implementation can be reapplied to utility companies or businesses that rely on proper field reporting that requires inspection. This structure can handle large teams at an enterprise level and can still be scaled to small solar startup. The functionality, transparency, and speed of this project are very advantageous and may be used as a framework in the future digital transformation activities.

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