

# Innovation With SAP Business Technology Platform (BTP)

How PG&E Used Fiori Elements And CDS Views To Streamline  
Financial Processes





# Agenda



Introductions and company overview



SAP System Landscape



The challenge to use existing landscape to streamline financial processes



Technical aspects of Fiori Elements and CDS Views



Invoice Validation Portal and Workflow overview



Supplier Estimate Portal overview



Demo Supplier Estimate Portal



# Presenters

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# Company Overview

## Pacific Gas & Electric Company (PG&E)

Incorporated in 1905 in California.

Provides natural gas and electric service to 16 million customers, from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east.

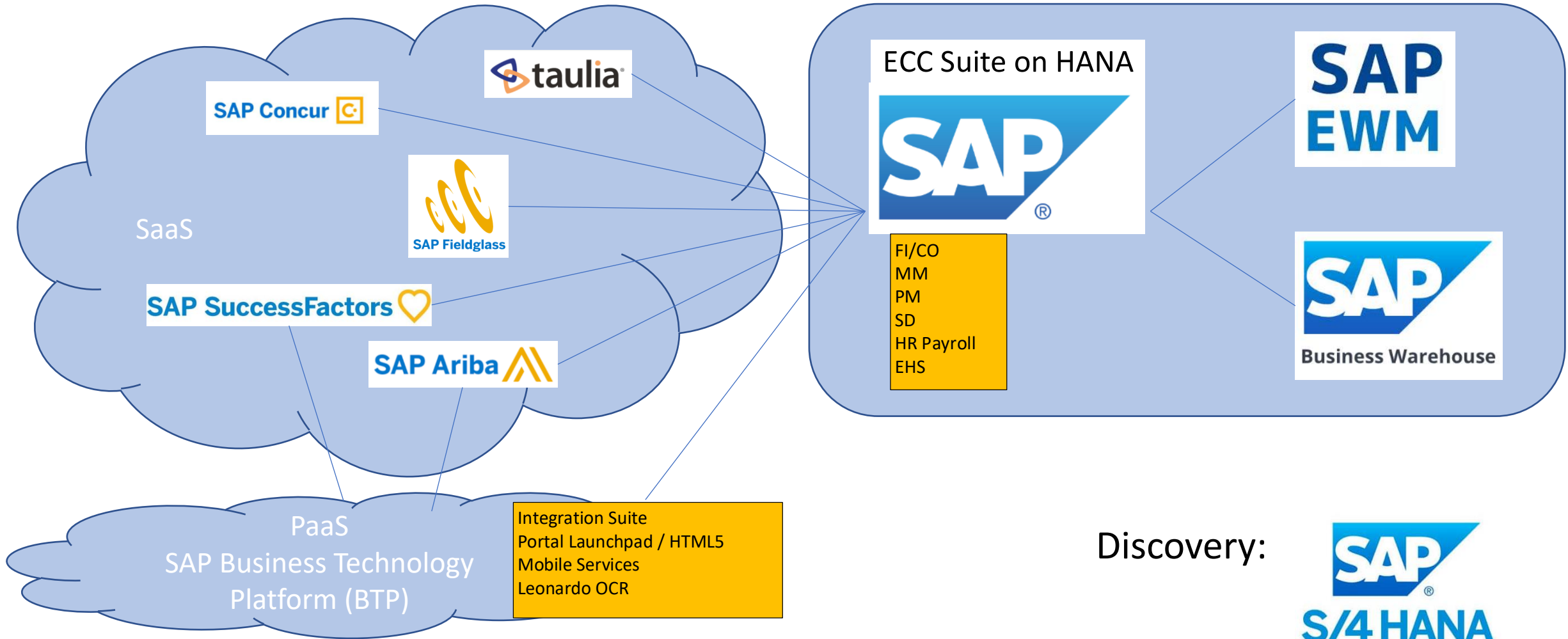
Headquartered in Oakland.

23,000 employees across Northern and Central California.





# Current System Landscape





# Purpose: use existing SAP landscape to streamline financial processes

## Procure to Pay process improvement



Decentralized review and release of invoices submitted by external suppliers.



Collaboration between external suppliers and line-of-business users for financial accrual estimates.

Challenge:  
users do not  
want to log  
into SAP



# Other challenges



- On ECC, new technology and functionality only available after upgrade, which can take years
- Complexity developing OData services, translating data model to table select clauses
- Complexity of SAPUI5 apps, challenging for business-logic focused ABAP developers
- UI consistency and version sensitivity of SAPUI5 apps
- Lines of business use their own tools to comply with company requirements, resulting in redundancy and technical debt





# How from SAPGUI to Fiori UX?

Change Document: Line Item 001

Vendor: 1000036 The Reliable Vendor, Inc. G/L Acc: 2320000  
Company Code: PGE1 245 Market St  
Pacific Gas & Electric Co San Francisco Doc No: 1000000000

Line Item 1 / Invoice / 31  
Amount: 1,102.50 USD  
Tax Code: I1  
W/Tax Base: 1,000.00 USD

Additional Data  
Bus. Area:   
Disc. base: 1,102.50 USD  
Pmnt Terms: PT10  
Blne Date: 03/04/2022  
Pmnt Block: M  
Pmt Method: Pmnt Meth. Sup.  
Assignment: 20220104  
Text:   
Long text

Payment Block Key (1) 28 Entries found

Block ind.*	Description
*	Free for payment
*	Skip account
0	Erroneously in MLX
1	MLX Account block
2	MLX Deficiency block
3	MLX In-Series Block
4	MLX Post-Petition BLK



SAP Invoice Validation

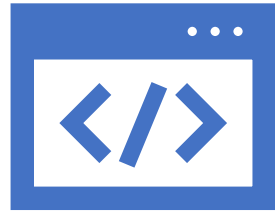
Standard\*

Purchasing Document: Vendor Invoice#: Vendor Number: My validation:  
Pending validation: SAP Document Number: Invoice Date: Discount Due Date: Validator List:  
=Yes x

Go Adapt Filters (1)

SAP Document Number	Invoice Date	Purchasing Docu...	Vendor Number	Vendor Name	Vendor Invoice#	Pending val...	Discount Due Date
5100000130/2023	Jan 25, 2023	2700737159	1078324	AIRGAS WEST	1234-12502	Yes	Feb 4, 2023
Invoice Amount: 2,200.00 USD PO Amount: 7,920.000							
5100000150/2023	Feb 1, 2023	2700737160	1078324	AIRGAS WEST	1234-12501	Yes	Feb 11, 2023
Invoice Amount: 1,020.00 USD PO Amount: 7,920.000							
5100000144/2023	Feb 2, 2023	2700737159	1078324	AIRGAS WEST	1234-12503	Yes	Feb 12, 2023
Invoice Amount: 1,800.00 USD PO Amount: 7,920.000							

# Solution: Fiori Elements and CDS Views



## Business Technology Platform (BTP)

### Fiori Elements

- Speed up front-end development: ABAP developers can create apps
- Metadata driven, configured with annotations
- Consistent UI: custom apps even look like S/4 HANA Fiori Apps
- Upgrade proof



## ECC Suite on HANA

### CDS Views

- Virtual data model
- Fast development of OData services based on CDS Views
- Provides metadata for Fiori Elements



# Why BTP?



Always has the latest and greatest functionality

No need to wait year(s) for upgrades before finally we can use it



Get ready for S/4 HANA

Tools and features used in S/4 HANA, for example, Fiori Elements for delightful and consistent user experience



Works well with our existing on-prem SAP Environment

Integration  
UI Applications  
Analytics



No need for complicated license process when adding a new tool

Subscription or usage-based



Automatic upgrades & patches, maintenance of infrastructure behind the scenes



# CDS Views

Virtual data model, based on underlying SAP tables

Glorified SQL joins

- Can contain more complex logic, including SQLScript programming logic using AMDP stored procedures
- “SE11 Database views on steroids”, accessed like any other SQL view

Exposed as OData service: all fields are automatically filterable and available in the output

- Speed up development of OData services
- For development only focus on create, update and delete in OData service, while using SADL (Service Adaptation Description Language) to reference the CDS Views for the data model

# Fiori Elements



Supports most commonly used Floor Plans, such as List-Object Page.



Framework to generate Fiori app based on metadata and annotations.



Addresses 80% of UI use cases

The “ABAP List Viewer (ALV) of Fiori Apps”

Other 20% can be handled with extensions or free-style SAPUI5



Business Application Studio (BAS) in BTP to configure the Fiori Elements App, including annotations



Perfect match for CDS Views which drive metadata and handle some of the annotations

# Invoice Validation Portal and Workflow (IVW)

## Main purpose

- A centralized web-based (Fiori) tool where assigned validators review and accept/reject Taulia/SAP invoices.

## Main features

- Notification of the Goods Recipient when new invoices are received in Taulia
- Routing by the Goods Recipient of invoices and attachments for review in the portal
- Acceptance or rejection of invoices in the portal
- Escalation of stale invoices
- Centralized data allowing for identification of bottlenecks and accurate tracking of days to payment
- A mobile-friendly portal for technical reviewers in the field
- New invoice-blocking logic that won't release invoices for payment until the GR has been posted and the technical reviewer/invoice validator has accepted the invoice
  - Standard SAP process using manual payment blocks, proven process with Chapter 11
  - Independent from external invoicing workflow and portal

# Standard SAP Accounts Payable

Purchase Order based Invoices.  
Logistics Invoice Verification (LIV)

- Three-way match

Manual Payment Blocks

- New payment blocks to distinguish different stages including Goods Receipt

Portal application handles payment blocks behind the scenes

- Equivalent of using FB02 to manage payment block on FI invoice

Real time recording of liabilities while still reviewing invoice for terms and conditions and matching with work performed

- Other invoice workflows lack financial visibility

The screenshot displays the SAP 'Change Document: Line Item 001' interface. At the top, it shows vendor information: Vendor 1000036 (The Reliable Vendor, Inc.), Company Code PGE1 (245 Market St, Pacific Gas & Electric Co, San Francisco), and G/L Acc 2320000. The line item details include Amount 1,102.00, Tax Code I1, and W/Tax Base 1,000.00. A dialog box titled 'Payment Block Key (1) 28 Entries found' is open, showing a table of restrictions:

Block ind.	Description
K	LOB Validate GRBlock
L	LOB Validate Block
M	LOB OK GRBlock

The dialog also indicates '28 Entries found' and includes a 'Long text' button at the bottom right.





# Fiori app generated from CDS View “Virtual” Workflow Inbox

```
28 define view zap_invval_hd as select from zap_open_poinvoices as inv
29
30 association [0..*] to zap_invval_item as _item
31 on $projection.materialdocnumber = _item.materialdocnumber
32 and $projection.materialdocyear = _item.materialdocyear
33
34 association [0..*] to zap_poinvval_users as _user
35 on $projection.materialdocnumber = _user.materialdocnumber
36 and $projection.materialdocyear = _user.materialdocyear
37
38 association [0..*] to zap_invval_attach as _attach
39 on $projection.materialdocnumber = _attach.materialdocnumber
40 and $projection.materialdocyear = _attach.materialdocyear
41 {
42 @Search.defaultSearchElement: true
43 @Search.ranking: 'HIGH'
44 key inv.materialdocnumber,
45 key inv.materialdocyear,
46   inv.sapdocnumber,
47   inv.compcode,
70   inv.invoicedate,
71 @Search.defaultSearchElement: true
72 @Search.ranking: 'MEDIUM'
73   inv.vendorinvoice,
74   inv.headertext,
75   inv.vendortext,
76   inv.pendinggr,
77   inv.mmgrblock,
78   inv.goodsrecipient,
79   inv.grsupervisor,
80   inv.myvalidation,
81   inv.pendingvalidation,
```

The screenshot shows the SAP Fiori 'Invoice Validation' app. At the top, there's a search bar and a 'Go' button. Below that, there are several input fields for search criteria: Purchasing Document, Vendor Invoice#, Vendor Number, Pending validation (set to '=Yes X'), SAP Document Number, Invoice Date, and Discount Due Date. A 'My validation:' dropdown is also present, currently set to '=Yes X'. Below the search form is a table with columns: SAP Document Number, Invoice Date, Purchasing Docu..., Vendor Number, Vendor Name, Vendor Invoice#, Pending val..., and Discount Due Date. The table contains three rows of data, each with a red vertical bar on the left indicating a pending validation status.

SAP Document Number	Invoice Date	Purchasing Docu...	Vendor Number	Vendor Name	Vendor Invoice#	Pending val...	Discount Due Date
5100000150/2023	Feb 1, 2023	2700737160	1078324	AIRGAS WEST	1234-12501	Yes	Feb 11, 2023
Invoice Amount: 1,020.00 USD PO Amount: 7,920.000							
5100000144/2023	Feb 2, 2023	2700737159	1078324	AIRGAS WEST	1234-12503	Yes	Feb 12, 2023
Invoice Amount: 1,800.00 USD PO Amount: 7,920.000							
5100000052/2023	Jan 11, 2023	3501291417	1078324	AIRGAS WEST	1234-111	Yes	
Invoice Amount: 60.00 USD PO Amount: 3,000.000							

```
10 @AbapCatalog.sqlViewName: 'ZACDSPOINVMYVAL'
11 @AbapCatalog.compiler.compareFilter: true
12 @AbapCatalog.preserveKey: true
13 @AccessControl.authorizationCheck: #CHECK
14 @EndUserText.label: 'PO Invoices requiring current user as validator'
15 define view zap_poinvoices_myvalidation as select from zap_poinvval_users as u {
16   key u.materialdocnumber,
17   key u.materialdocyear
18 } where u.Userid = $session.user and u.Role = 'VALIDATOR' and u.Deleted = '' and u.Status = ''
```





# User clicks button to change/remove payment block

SAP Invoice Validation Gp

**Release Invoice** **Reject Invoice**

SAP Doc#: 5100000093/2022 Invoice Date: Nov 14, 2022 Vendor#: 1078324 Vendor Name: AIRGAS WEST - DV8 MII FEB Release Vendor Invoice#: IV-SGR&MR-L Amount: 20.95 USD

Due date: Pending validation: Yes

Invoice Line items Validators Attachments

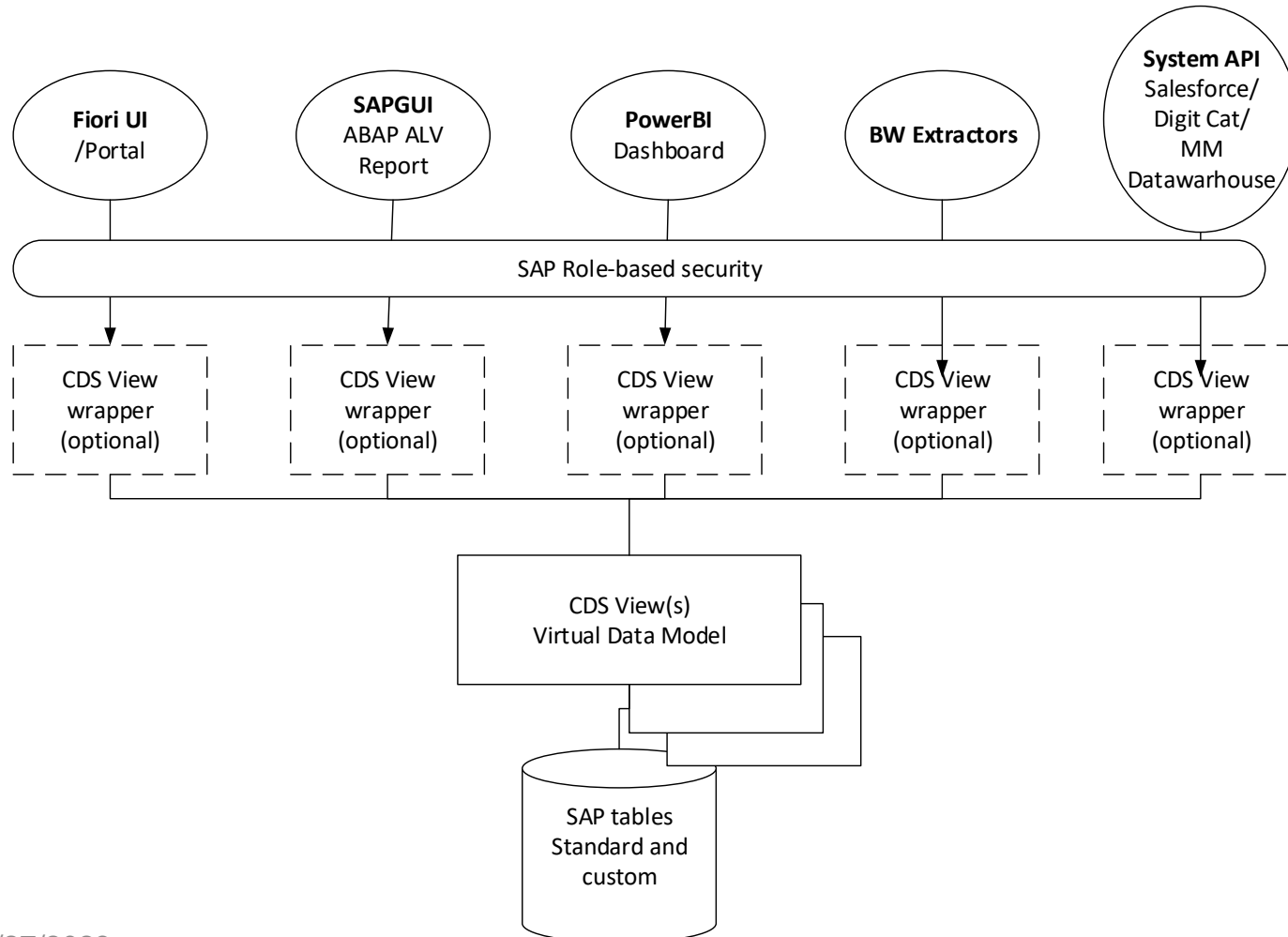
Purchasing Docu...	Item	Short Text	Quantity	Amount	Order Quantity	PO Amount
3500008058	3	service - i0	10.000	10.000	100.000	100.000
3500008058	4	material	10.000	10.000	200.000	220.500

Validators

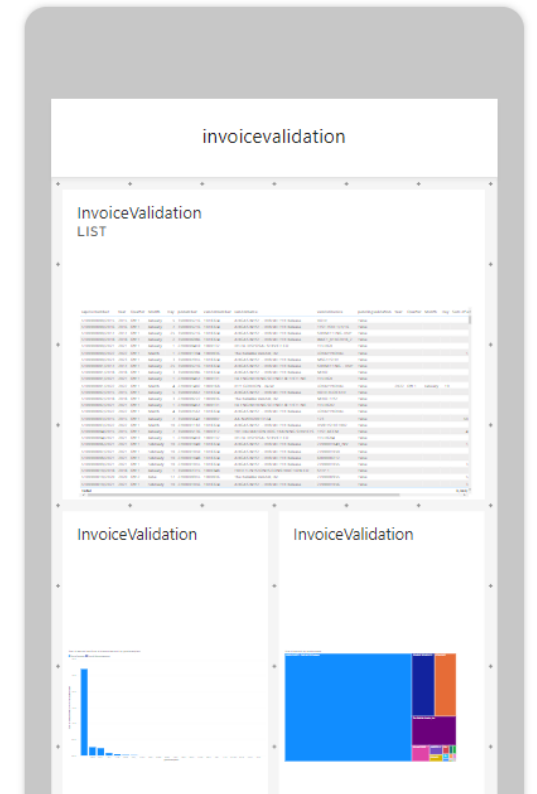
Invoice val user	Full Name	Validation Status	Deleted	Reject reason	Changed On
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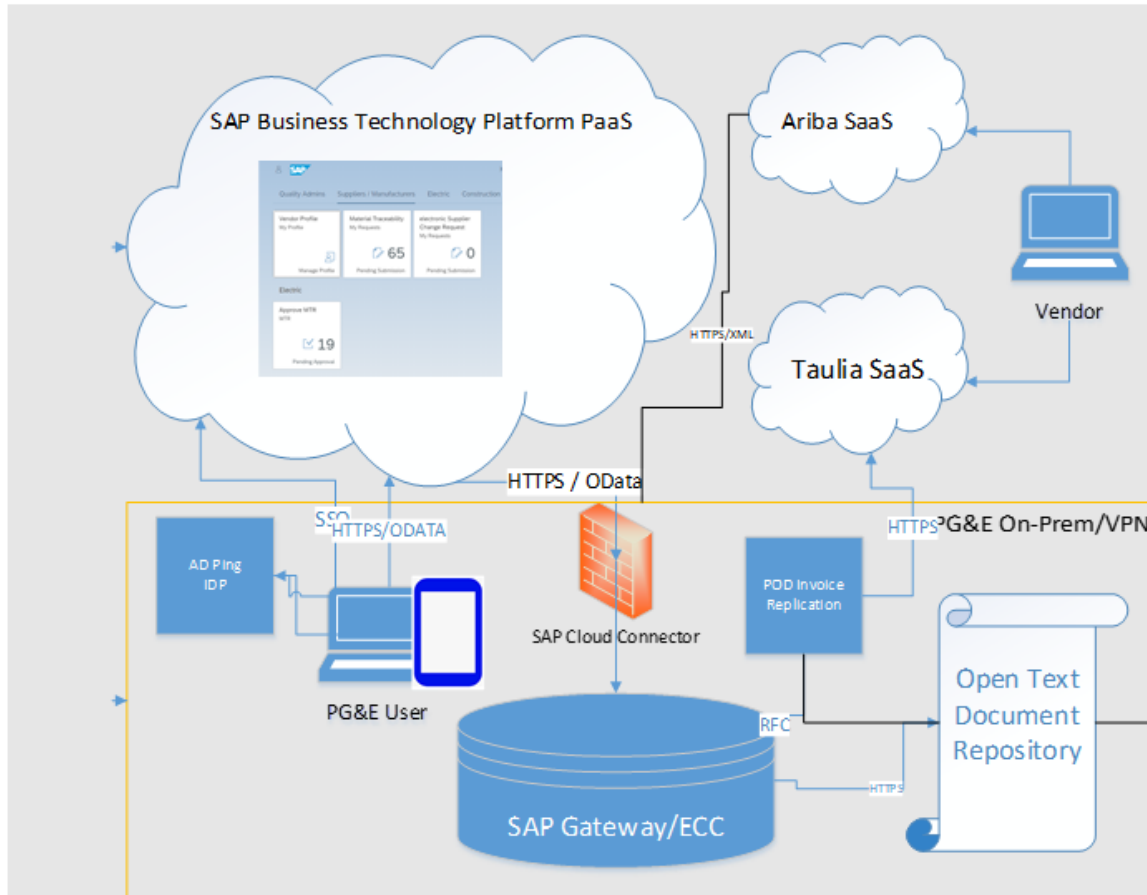


# One CDS View, Many Purposes



## Example: Power BI Dashboard





## IVW Solution

- **Existing SaaS solutions Ariba for Goods Receipt and Taulia for vendor invoicing**
- **BTP Portal for PG&E Users**
  - Ping IDP for PG&E users
  - Development and hosting Fiori UI
- **GW/ECC for workflow, reporting**
- **OpenText for retrieval of vendor attachments uploaded in Taulia**

# Supplier Estimate Portal (SEP)

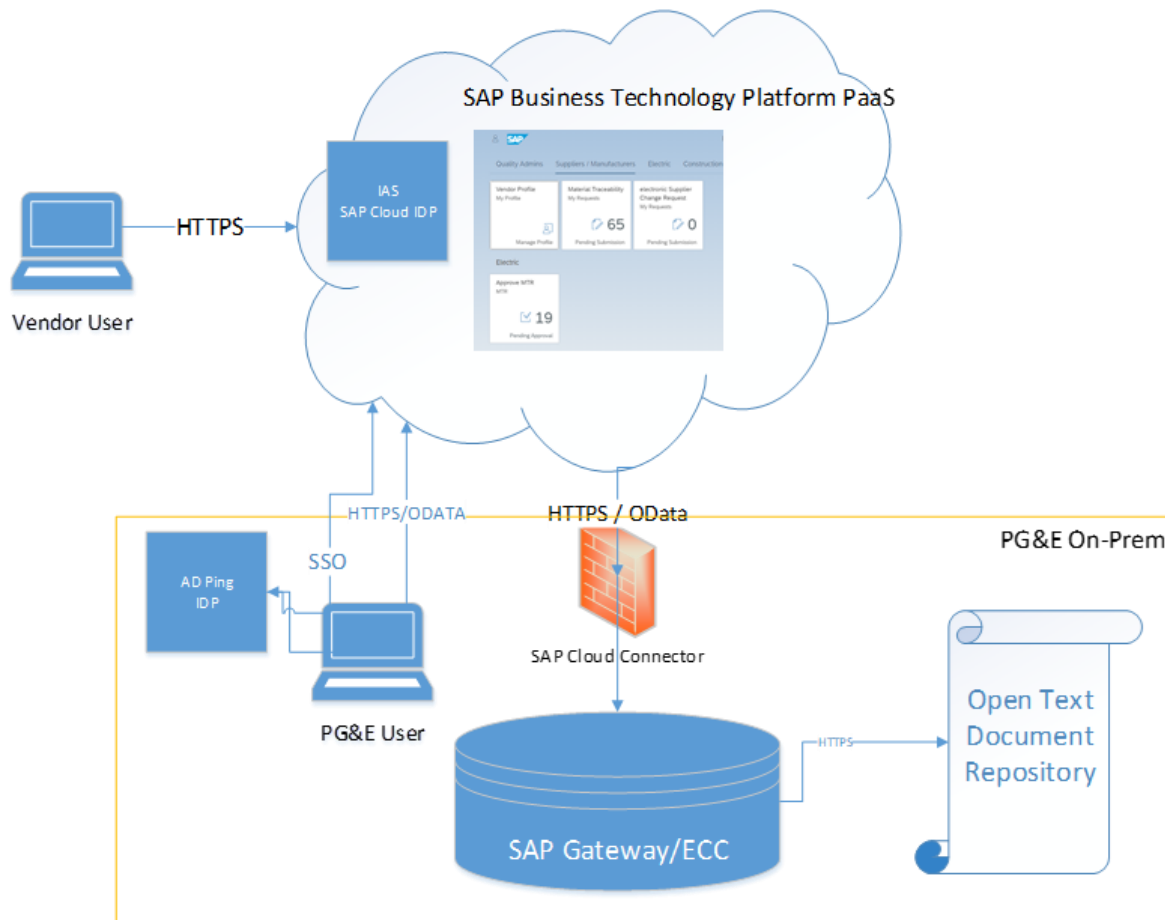
## Main purpose

- PG&E users from various functional areas collaborate internally and with their suppliers to get accrual estimates in, timely and accurately

## Main functions

- External access for suppliers to submit estimates and collaborate with PG&E
- Real-time SAP data validation
- Attachment of supporting documents
- Accrual Approval Routing
- Comment and Activity logs
- Journal Entry posting upon final approval
- After the Fact PO/Contract Change Orders accrual data collection





## SEP Solution

- **BTP Portal for both vendors and PG&E Users**
  - BTP IAS for vendor users
  - Ping IDP for PG&E user
  - Development and hosting Fiori UI
  - Vendor Registration App
- **GW/ECC for workflow, reporting, Journal Entries**
- **OpenText for storing uploaded Excel files and supporting documents**

# DEMO

Supplier Estimate Portal

