



open**SAP**

TOUCH IOT WITH SAP LEONARDO PROTOTYPE CHALLENGE

**IOT PRINTING SERVICE MANAGEMENT
YE TIAN**



Story

Although companies nowadays are trying to move away from printed-out documents to the digital ones, they will keep or still purchase printers and put them at the corner in their offices to be prepared for any kinds of printing jobs. Unlike a home printer, an enterprise printer has a far better printing performance and quality, but also it costs much more. The paper and ink/toner consumption are much higher, and it needs to be maintained more frequently. Thus, the concept of Printing-as-a-Service (PRaaS) is introduced.

The concept of PRaaS is inherited from the concept of the cloud technology (e.g. cloud computing or cloud storage), instead of purchasing, companies only rent printers and pay for the printing service, which includes the cost of accessories (paper and ink/toner) and maintenance, on demand. Therefore, on one hand, there will be no more sunk cost of the printer for the companies, and they will benefit from on-demand printing during their digital transformation; on the other hand, as PRaaS service operators, it is important to monitor and maintain their printers and to deliver accessories efficiently.

IoT Printing Service Management (IoT-PSM) is thus designed to assist PRaaS service operators to monitor their printers with different brands deployed in different companies, to operate efficient supply chain for paper and ink/toner cartridges, and to arrange and support maintenance.



Persona

MAIN ROLES

Role	Description
Service Operator	Service operators monitor the status of all printers of the assigned companies, coordinate installation and maintenance tasks, and communicate with companies regarding further requests or appointments.
Inventory Manager	Inventory managers manage printers, ink/toner cartridges, and accessories for all printers with different brands in the inventory, they are responsible also for purchasing.
Printer Operator	Printer operators accept requests from service operators and get necessary printer parts from inventory managers. They deliver, install, and maintain printers and their accessories.

PERSONAS

Alice, F, 35, *Service Operator*

Alice worked as secretary for several years and has outstanding management and communication skills. She loves the feeling of everything in control, and she wants to see all necessary information and possible actions at once, so that she can make quick and accurate decisions.

Bob, M, 50, *Inventory Manager*

Bob works as inventory manager all the time after graduation, he knows every place in the inventory and manages everything in order, but sometimes he forgets which parts are in which place.

Chris, F, 19, *Printer Operator Associate (Intern)*

Chris is a college student studying computer science, and she wants to earn some pocket money during her semester break. She is fresh to the printer industry but she eagers to learn and she is a quick learner. She hasn't got drive license yet.

David, M, 33 *Senior Printer Operator*

David works as printer operator for many years and he knows every part of every printer of every brand. He has a really good communication skill and many companies wants him to deal with their printers. Thus, he is looking for something can optimize his work.



Point of View (PoV)

Alice

As a service operator, I want to have a nice dashboard for all the printers of each of my companies, a detailed page for each printer for the paper and ink/toner cartridges monitoring, a notification area for getting requests, and an easy to use management area for assign tasks, so that I can work efficiently and effectively.

Bob

As an inventory manager, I want to have an easy to use inventory manage tool, so that I can easily search parts, get orders, and purchase. Hopefully the font can be adjusted for elders like me.

Chris

As a printer operator intern, I want to have an instructive guideline when I install and maintain printers, so that I can even know in advance how to install and maintain them. I don't have a drive license yet, thus I want to do maintenance more than installation.

David

As a busy printer operator, I want to have a clear and optimized schedule, so that I can install and maintain as many as possible the printers in one day, without spending unnecessary time on the road.



UX Journey

Alice

Actions	Mindset	Feeling	Touch Points
Get a request email from IoT-PSM.	Oh, a new request!	😊	Outlook
Read the email.	I see. The toners will run out in company A in few days, they need soon.	😊	Outlook
Open the link in the email, to the IoT-PSM dashboard.	I have to check in details, which brand, which toner ...	😊	IoT-PSM
Open the printer detail page.	Yes! That's the one, I need to coordinate maintenance now.	😊	IoT-PSM
Make a call to the company A.	I will inform them when we should come, make a quick appointment	😊	Phone
Click refill toner, enter the date.	OK, they have office close on Monday, Tuesday is ok.	😊	IoT-PSM
Assign to a printer operator.	Great, Chris has time slot and changing toner is not hard for her.	😊	IoT-PSM
Get confirmation from Chris.	All set!	😊😊	Outlook, IoT-PSM

Bob

Actions	Mindset	Feeling	Touch Points
Receive a refill request	New quest arrived	😊	Outlook, IoT-PSM
Check the requested part	OK they need a new Canon toner, where is it?	😊	Outlook, IoT-PSM
Search for the location of the part	Let's see...	😊	IoT-PSM
Locate the part in the inventory	Got it!	😊	IoT-PSM
verify quantity	There are only 10 remaining. Enough for now. Although the system will notify me when it is lower than 5, I'd better to order some now.	😊	IoT-PSM
Click order	Order 100 more then...	😊	IoT-PSM
Finished order	Done! Now I will prepare for the toner for the request	😊😊	IoT-PSM
Proceed the request order	Get the toner, and wait for Chris to pick up then. Happy to see her!	😊😊	Shelf, IoT-PSM

Chris

Actions	Mindset	Feeling	Touch Points
Receive maintenance request	New request! Time to have a walk!	☺	Outlook, IoT-PSM, Tablet, Smartphone
Check the request	It is a refill task, no problem!	☺	IoT-PSM
Check the inventory status	Bob is ready, I will go to him.	☺☺	IoT-PSM
Get the refill parts	Time to go to the company!	☺	Shelf, Bob, ...
Arrive the company, start changing refill parts	It is a new model of the printer to me	☹	Printer
Check the instruction	Yes, I found the instruction! It is not hard. I should prepare for it on the road.	☺	IoT-PSM
Finish maintenance, set task done	All done! Going back.	☺	IoT-PSM

David

Actions	Mindset	Feeling	Touch Points
Receive list of requests	Today's tasks! Oh, a lot.	☹	IoT-PSM
Get parts from Bob	Get a bit more parts in case of new tasks. Hey Bob!	☺	Bob, Shelf, Inventory...
Check the optimal route	I start with the nearest one.	☺	IoT-PSM
Receive a new task suddenly before leaving	A new task! Oh, nice. I prepared!	☹ → ☺	IoT-PSM
Optimize the route	The new one is nearer. It is ok for me.	☺	IoT-PSM
Go on with task	Go Go Go	☺☺	IoT-PSM with map, GPS, Car



Prototype

Prototype screens for an IoT application to solve your PoV

The prototype for inventory management is skipped, because it can use typical SAP S/4 HANA solutions for inventory management.

The prototype for service operating is built on sap.build.me, and can be visited from the following shared link (5 pages):

https://sap.build.me/prototype-editors/api/public/v1/snapshots/a0d0f8f9c0d002740e0fda21/artifacts/latest/index.html#/service_operator_overview

The prototype for printer operators can be found here:

Request (1 page):

https://sap.build.me/prototype-editors/api/public/v1/snapshots/a0d0f8f9c0d002740e0fda21/artifacts/latest/index.html#/printer_operator_request

Routing (1 page):

https://sap.build.me/prototype-editors/api/public/v1/snapshots/a0d0f8f9c0d002740e0fda21/artifacts/latest/index.html#/printer_operator_routing

Installation (1 page):

https://sap.build.me/prototype-editors/api/public/v1/snapshots/a0d0f8f9c0d002740e0fda21/artifacts/latest/index.html#/installation_guide