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Information Systems 01PDWOV

28 January 2022

Books, notes are not allowed. Write only on these sheets.

Free classified ads

Classified ads are a popular way to publish any kind of ad or offer (job offer, job request, sale of items). Let's focus on sale of items. A person publishes an ad, describing the item on sale, the requested price, the location, and a telephone or email to be contacted. Ads are divided in categories (ex house, car, bike, job offer, job request etc). Classified ads were (and still are) published on paper, but are now, in majority, published on web sites (ex subito.it or Kijiji.it in Italy)

AS IS process
Let's focus on company ADS, producing a web site specialized in classified ads for the exchange of small objects (so excluding cars, houses and similar). The current process is as follows. A user accesses the web site and publishes an ad. Users (sellers) can also define an account (with username and password) where they can find all their ads and relative traffic. Other users (buyers) access the web site and either search for ads (using keywords, location, ad categories) or browse them.
When a buyer finds an object she is interested in, contacts the seller, negotiates, and possibly agrees on the exchange. In this case the buyer pays the seller, the seller ships the object to the buyer. Negotiation, payment and shipment are ***not*** managed through the website.

Basic ads are free. The seller may want to pay to increase the visibility of ads.

TO BE process
The goal is to manage negotiation, payment and shipment within the web site.
As in the current situation, sellers publish ads and possibly define an account. Buyers search or browse ads. When a buyer finds an object he is interested in, starts a negotiation with the seller, using a chat (private to the pair seller – buyer) provided by the web site. If an agreement is reached the buyer pays the requested amount of money (using credit card, bank transfer, paypal or similar) to the web site (not to the seller). The seller packages the object and brings it to a pick up point. The pick up point is managed by a third party company (lets call it SHIP). SHIP handles the delivery of the object to the buyer. The shipping fee is paid by ADS to SHIP. Both buyer and seller can trace the state of the shipping on the web site. When the buyer has received the object, he signals on the web site that he has received the object and is satisfied with it. At this point ADS sends the agreed amount of money to the buyer (minus the shipping fee).
(Many exceptions can happen, like the buyer is not satisfied with the object and returns it, the object is lost during shipping, etc. Do not consider them).

In the following model the TO BE situation.

1 Organizational model: list roles or organizational units involved

End user (buyer or seller role)
ADS
SHIP
Payment circuit (credit card company, bank, paypal)

2 Processes

Name	in	out	description	Ou Involved
Create account		Account created	Seller creates and account on ADS. ADS verifies seller and confirms account creation	Seller, ADS
Publish add		Complete add published and searchable by buyers	Seller writes ad, asks for publication. ADS checks ad (inappropriate content etc) and if ok publishes it	Seller, ADS
Manage sale 1 select and pay item	All ads	Agreement on object to buy, object paid	Buyer searches / browses ads. When finds interesting objects asks to seller information, negotiates price, reaches agreement, makes payment to ADS	Buyer, seller, ADS, payment circuit
Manage sale 2 Prepare Shipment	Agreement on object to buy	Object delivered for shipment	Seller packages object, receives and prints shipment letter, delivers object to SHIP	Seller, ADS, SHIP
Manage sale 3 Deliver	object	Object delivered to buyer, sale closed	SHIP delivers object to buyer. Tracing of object is available. Buyer verifies object, buyers notifies ADS that object received and satisfactory. ADS transfer money to seller. Buyer reviews seller, seller reviews buyer, their scores are updated	Buyer, seller, ADS, payment circuit

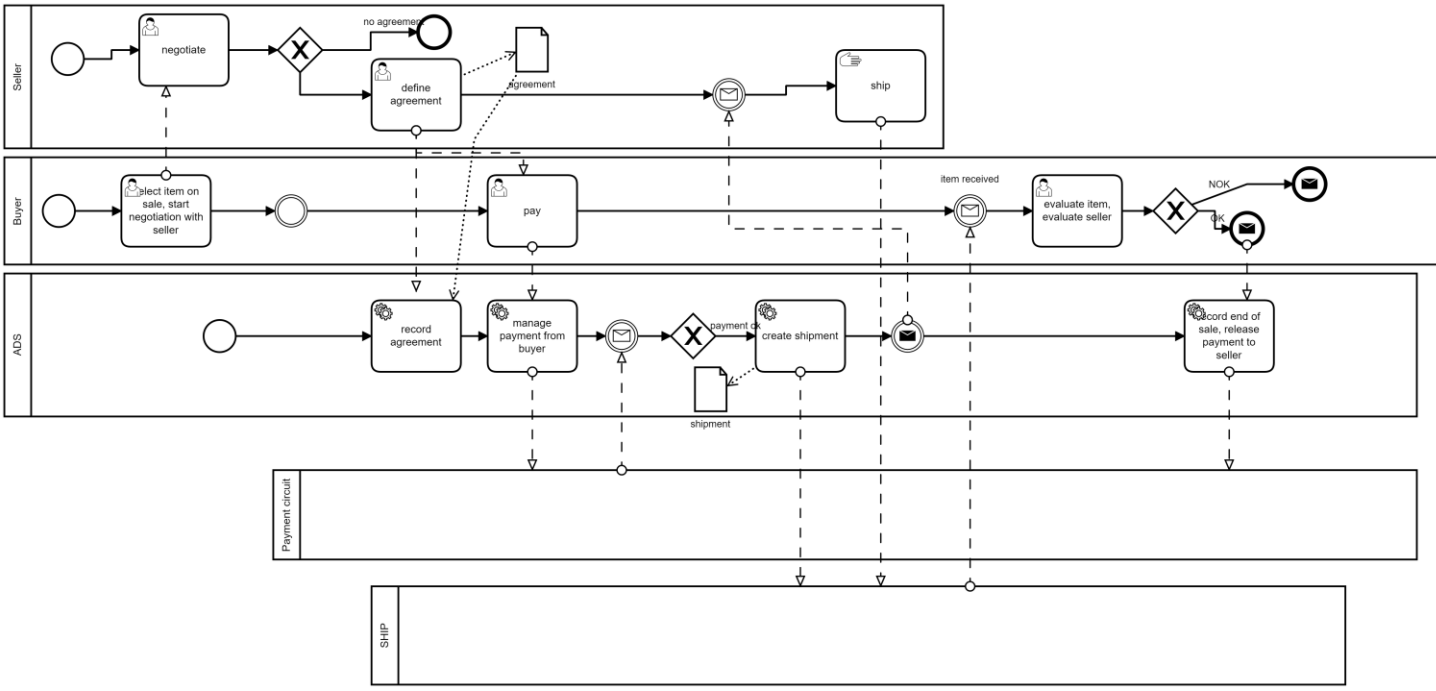
The last 3 rows altogether represent the complete ‘manage sale’ process, from decision of buyer to buy to object delivered and paid to seller. Further, these 3 rows did not involve ADS in the AS IS and are the most important to be modeled.

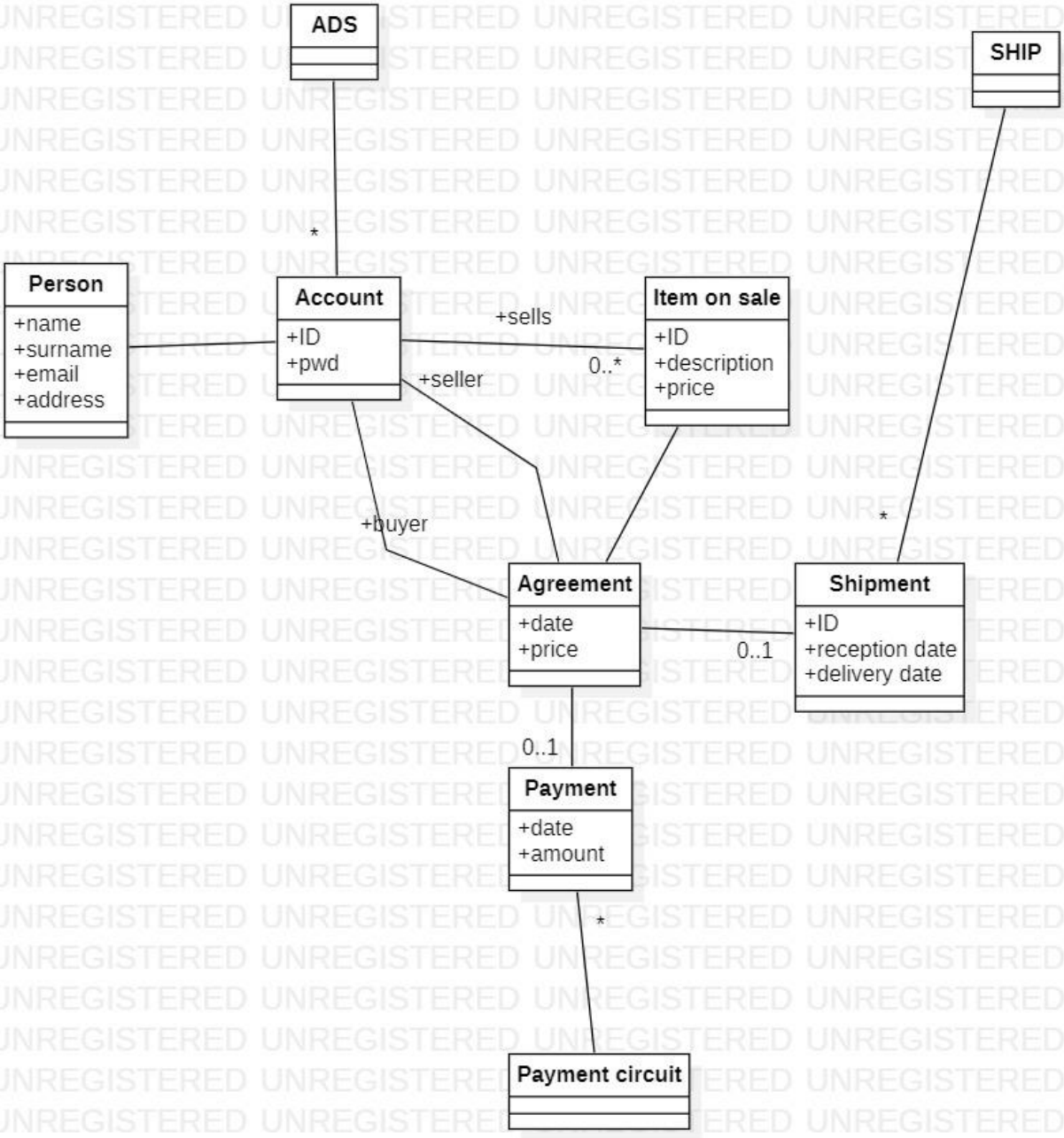
2 Process model
In the following the complete sale process

3 Conceptual diagram

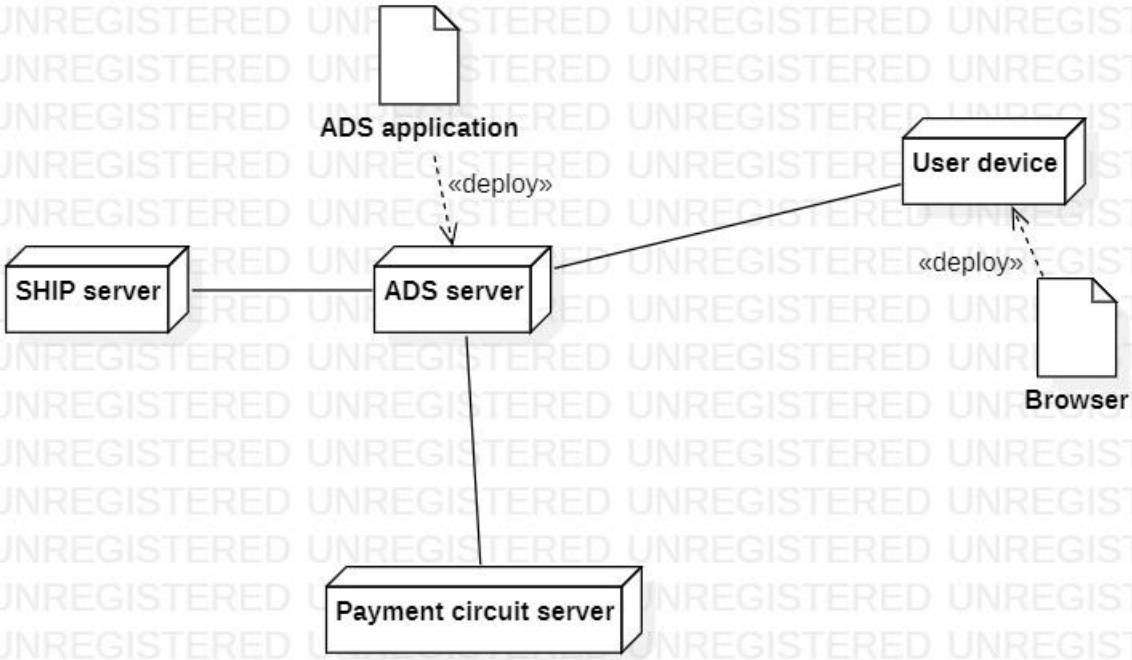
Remark, buyer and seller are ROLES in associations, not classes (same person can be buyer in one sale, seller in another one)

2 Functional model: Design and model (using BPMN + UML class diagram) the TO BE process





3-a IT Model / Technological model: describe the hardware architecture of the system
(use **UML deployment diagram**)



3-b Business rule: define (in English, or formally) at least one business rule for the process

Seller is paid after buyer accepts item
Seller ships after payment by buyer
Shipping fee is X euros until Y kg parcel

5 Define the KPIs, considering these high level business goals (or CSF), CSF1 maximum convenience for user (buyer / seller).
If needed, define also indicators that are not KPIs.

CSF name	KPI Category (General, cost ..)	KPI Name	KPI Description	Unit of measure
	general	N_ads	Number of ads published per year	
		N_sales	Number of sales (ads that end up in a sale) per year	
CSF1	efficiency	UC_Ad	Unit cost to manage an Ad. = (cost of ADS personnel + cost of IT infrastructure) / N_ads UC should not include cost of shipping and possibly cost of payment, since they depend on SHIP and banking circuit	euro
		UC_sale	= (cost of ADS personnel + cost of IT infrastructure) / N_sales	
CSF1	Service	LT_publish	Lead time for user to publish ad	t
		LT_sale	Lead time to complete a sale, from agreement on object defined to seller is paid (includes LT_delivery)	t
		LT_delivery	Lead time from SHIP receives object to buyer receives object	t
CSF1	Quality	Defective sales	Sales with a defect / N_sales (includes defects in shipping, defects in web site / IT that impact on a sale)	%
		Customer satisfied	(Sales with both buyer and seller satisfied)/N_sales	%

6 Compare the previous and the current situation, using the KPIs defined above

KPI	AS IS	TO BE
UC_ad		Could increase slightly due to new IT functions to be added
UC_sale		Cant compare, was not available
LT_publish		No change.
LT_sale		Cannot be compared, in as-is shipping and payment are managed by seller/buyer not by ADS.
LT_delivery		not controlled by ADS, but by SHIP. In case ADS can change provider if LT_delivery not satisfactory
Defective sales		The part specific to ADS does not change. However the part of defects coming from shipping will be considered, by the user, as defects caused by ADS (even if in fact responsibility is of SHIP)
Customer satisfied		Cant be compared, was not available

7 Considering the classified ad web site and the infrastructure it have to build or acquire for the TO BE, define the software functions needed

Activity (see BPMN)	**Software function(s) needed**
Create account, publish add	Related Functions already available in AS IS
Negotiate Define agreement Record agreement Pay Manage payment from buyer	Chat or internal email for negotiation Definition of agreement Payment from buyer (obtained via API of payment circuit)
Create shipment	Definition of shipment data (buyer address and phone etc, seller address and phone, delivery conditions, tracing of shipping) (obtained via API of SHIP)
Evaluate item Evaluate seller Record end of sale Release payment to seller	Rating of object Rating of buyer / seller Payment to seller (obtained via API of payment circuit)

A cross functionality that SHIP could implement is profiling of sales / sellers / buyers

8 Considering the comparison in point 6, summarize pros and cons for the actors in the TO BE situation (add actors if needed)

	PROS	CONS
Buyer / seller	ADS guarantees the transaction by keeping the money Seller does not need to find shipping company nor decide payment means	Seller restricted to use shipping company and payment methods offered by ADS
ADS	Customer retention Customer profiling (see answer question 9) Possibly increase in revenue (see question 10)	Investment in IT
SHIP, payment circuit	Increase business volume	

9 In terms of strategy, considering the previous case, what are the reasons to implement the TO BE for ADS?

Customer retention. New entrants (ex wallapop, vinted) in the market manage the complete process. ADS must do the same to retain customers and avoid they switch to competitors
Customer profiling. Since ADS manages the complete process it can analyze all related data and profile the customers, what they sell, buy and why. These profiles could be sold to other companies and be another source of revenue

10 Consider the ADS case and its Business model canvas. How the revenue stream could change from AS IS to TO BE?

AS IS: revenue is from premium ads (seller pays for more visibility of ad)
TO BE: revenue is as in AS IS plus, possibly, a co-share of profits with SHIP and credit card companies (ADS brings new business to SHIP which in return shares part of the profit)
Further, the revenue stream could change in volume if the change attracts more customers

11 Consider the ADS company, and its cost structure in the Business Model Canvas. List the costs and categorize them (fixed variable, direct indirect)

	fixed	var
Direct		Shipping fees to SHIP
indirect	IT / software maintenance , operation (personnel, licenses) IT / hw infrastructure Offices Administration, HR, finance accounting Advertising	IT / software new developments (personnel, licenses)

12 Propose a few SLAs to allow ADS monitor the outsourcing relation with SHIP

LT_delivery (Shipment delivery time)
Cost per shipment
N of shipments with problems (loss, mis delivery, ..)

13 Describe the ‘confirmation bias’ in decision theory, and make an example

Having a predefined thesis / decision in mind, select only facts and data that confirm it. Ex. ‘climate change is not real, because last august was cold in my city’