



R&D

.....
RJC - IHM

Colombe Hérault

● ● ● ● e-payment services

worldline
an atos company

Let me introduce myself

- ▶ I am manager at R&D – User eXperience department
- ▶ Part of Worldline's « Research and Development team – User eXperience » team for **9 years**, I have developed technical skills in various domains such as **IoT, indoor geolocation, RFID, NFC, social networks.**
- ▶ Nowadays, I build upon my technical and **innovation management** background to identify new trends, develop innovative POC with my team and support operational teams in their innovation process.
- ▶ Before joining Worldline, I obtained a **PhD in Software engineering** and worked 2 years at the Grenoble Informatics Laboratory in the domain of **adaptive middleware in M2M**

Innovation animation & management

Research

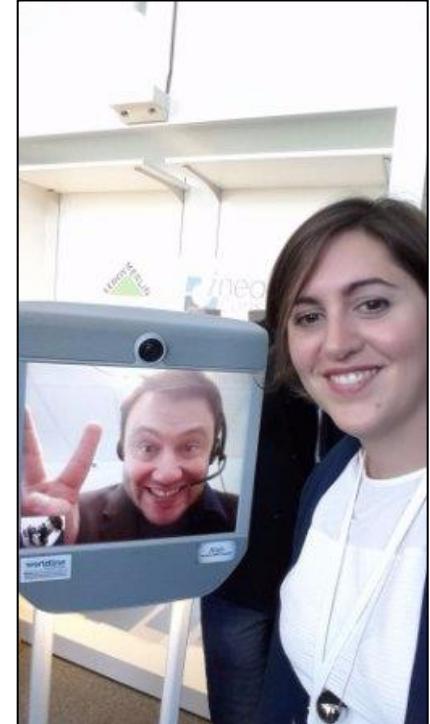
Internet of Things

Energy & IoT

Indoor geolocation

Robotics

Social networks And CRM



1

Worldline



equensWorldline
-the new-
pan-European leader
in payment services

Profile

Worldline [Euronext:WLN] is the European leader in the payments and transactional services industry. Worldline delivers new-generation services, enabling its customers to offer smooth and innovative solutions to the end consumer.

Key actor for B2B2C industries, with over 40 years of experience, Worldline supports and contributes to the success of all businesses and administrative services in a perpetually evolving market.

Worldline is an Atos company.

€1.5

billion
annual revenue
circa

8,600+

talents

20

countries
around
the world



Worldline international footprint



Worldline mission: Empowering the cashless society



Processor of
e-Payment services

Provider of end-to-end
digital B2C transactional services



Merchant Services & Terminals
c. 186,000 merchants



Financial Processing & Software Licensing
c. 250 banks



Mobility & e-Transactional Services
Governments and other sectors



Une approche différenciante et complète

Un engagement de résultat de bout en bout

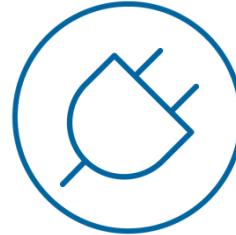
← Worldline est présent sur l'ensemble de la chaîne de valeur →

Construction du service



- Développement d'outils et d'applications
- Solutions propriétaires et open source
- Personnalisation métier du service

Déploiement & Production



- Pré-production (test, recettes) et mise en production
- Maîtrise des solutions déployées et des environnements d'exploitation

Exploitation & Maintenance



- Respects des engagements
- Prévention et réactivité sur les incidents
- Outils d'administration 4 sites en Europe
- Infrastructures à l'état de l'art
- PCI-DSS, ISO 9001:2000, 17799, BCP (PCA), ...

← Equipe métier dédiée et sur toute la durée du contrat →



Run your business smoothly

By using our trusted platforms and software





Optimize total
cost of ownership

Enhance your TCO

By taking advantage of our unique scale in transaction processing

c. 100 million



Cards under management

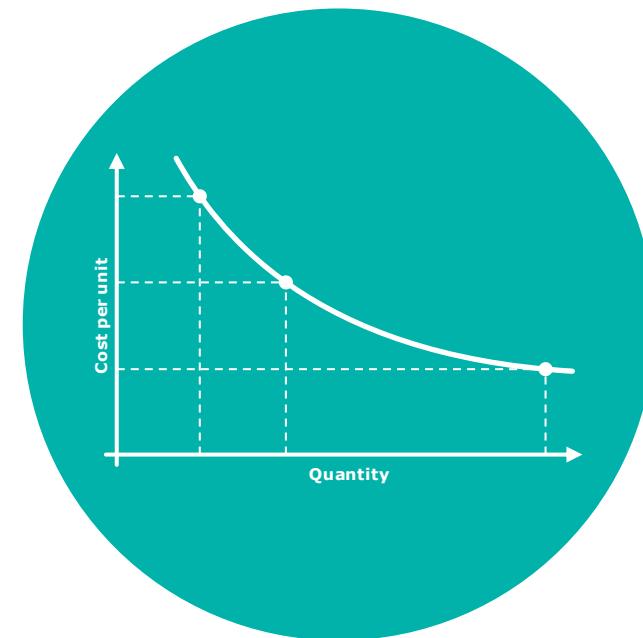
c. 10 billion



Payment transfers processed per year

c. 7.5 billion

POS and ATM transactions
processed per year

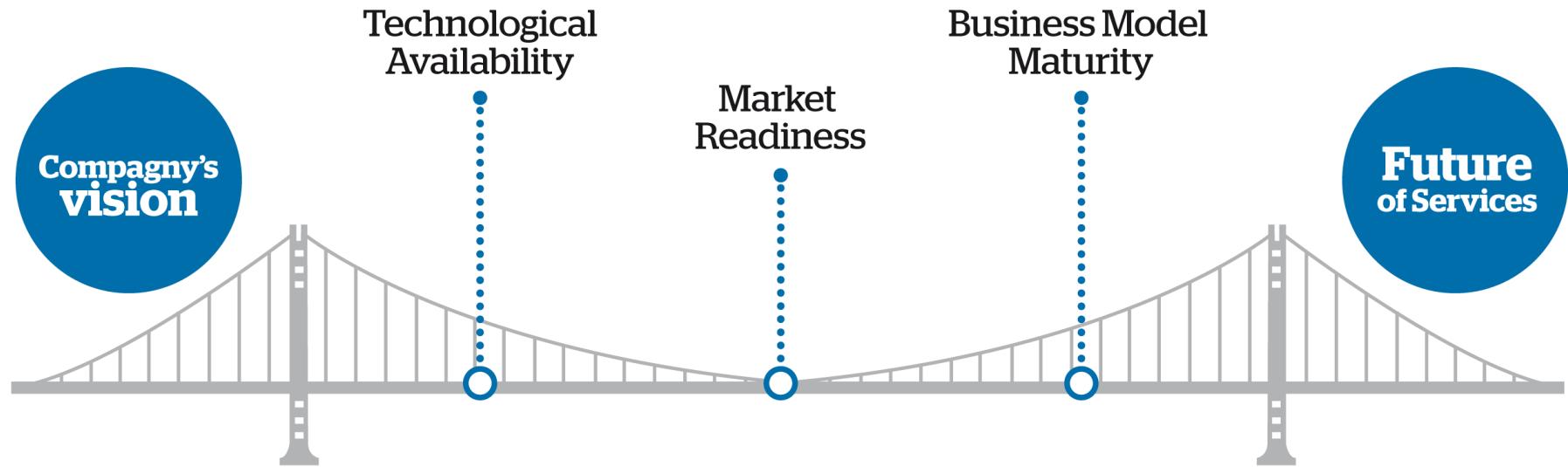


2

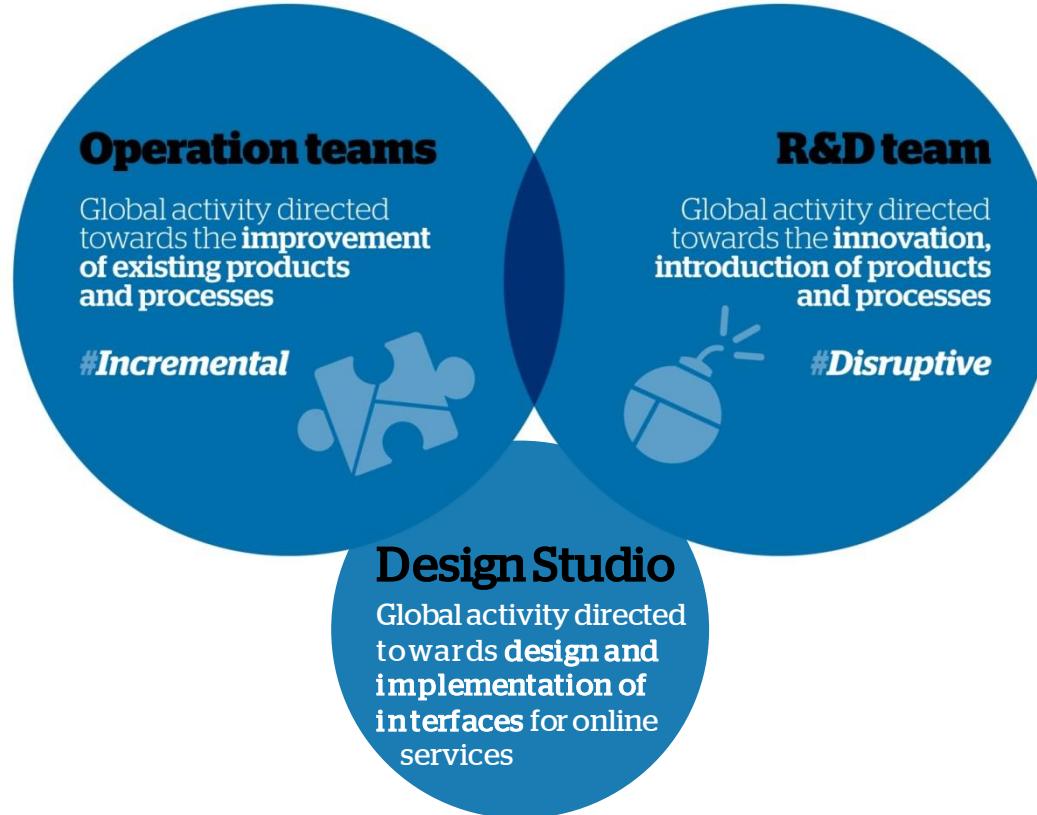
Focus on the R&D department



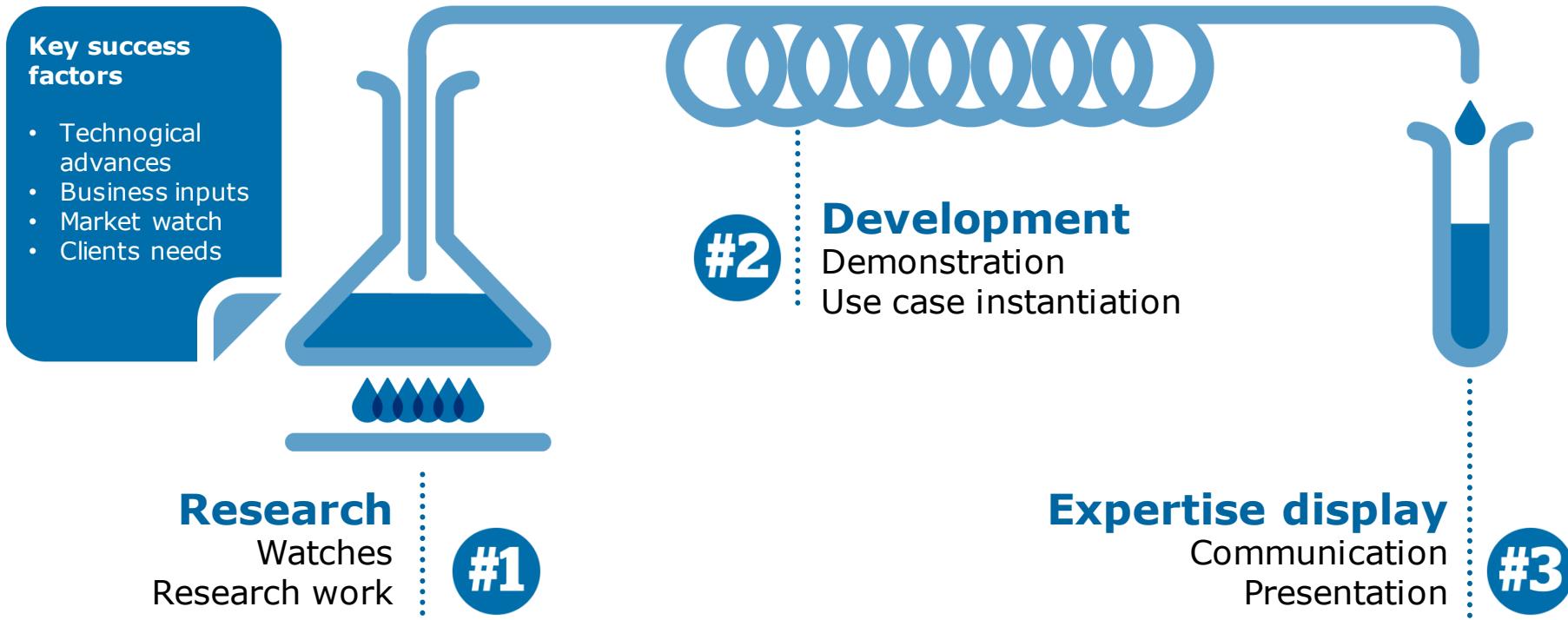
R&D & Innovation - bridge between



Innovation @Worldline



Focus R&D - Missions

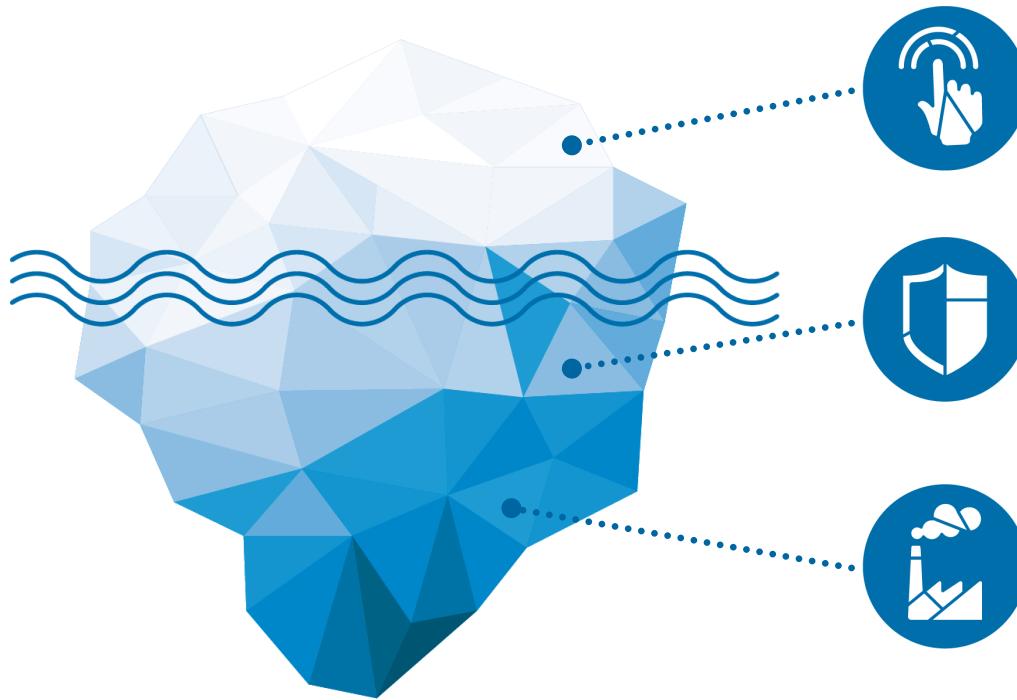




Focus R&D - A global international provider



Focus R&D – 3 axis of innovation



The most visible part:
The User eXperience
To create new usages

The Worldline DNA:
Trusted Services
To secure transactions

The heart of Worldline services:
High Processing & Volumes
To deliver good quality services



R&D Axis of Innovation

User eXperience



Objective

- to **enrich** the **user eXperience** of end users
- to foster **innovative usages**
- to transform the **digital journey**
- to support the **digital transformation** of Worldline's clients

Vision 2017

Main trends explored : "Internet of Things", "digital transformation", "mobile, contextual and multi-device eXperience", "connectivity & often connected", "new & wearable devices for new eXperience", "Personal Assistant services"...



→ support WL. clients in their Digital Transformation

**connected life &
new interactions**

at home, in vehicles,
in stores, in agencies,
in stations,...



end-users connectivity

IoT connectivity (local & long range communication –
SIM, LoRa, LoRa-WAN, SigFox...)

Mobile connectivity (thanks to Bluetooth, BLE,
LiFi?, ultrasonic,...)

Internet of Things
new devices & new services
energy consumption, costs, usability,
security & fun are KEY .

mobile & its companions
devices eXperience

new devices like smartwatch,
Virtual Reality

**Contact, Personal
Assistant & Social Bots**

text vs voice interactions, simple vs natural dialog,
Social Networks vs conversational web,
IoT & robots devices for personal assistant



→ support WL. clients in their Digital Transformation

think Mobile first (*but not mobile only*).

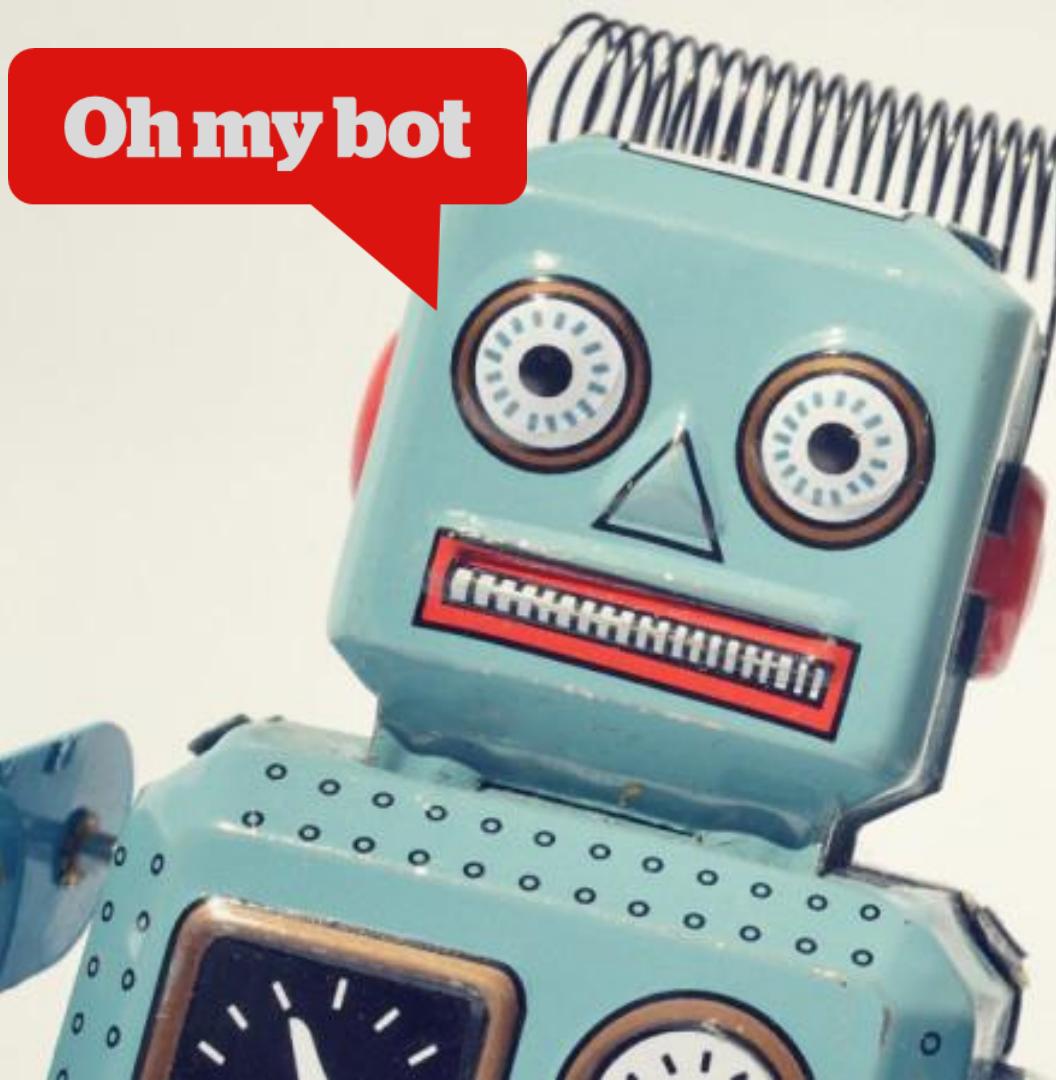
think connected devices

in multi-(new-)device world



3

R&D UX project
Bots



Oh my bot

Welcome in the new era **of bots!**

*from Personal Assistant,
Bots, Social Bots... to
Conversational Web*

1

Why this “Bots” subject ?

Bots are not new...



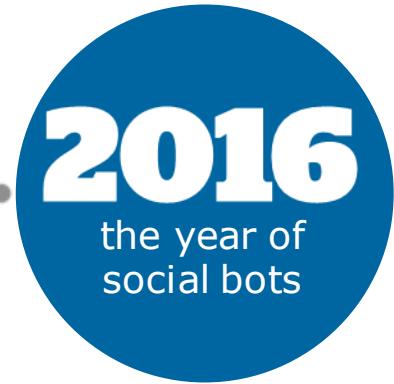
Vocal server



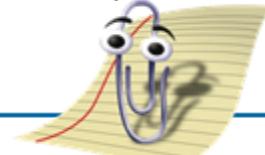
Virtual agent



Personal assistant



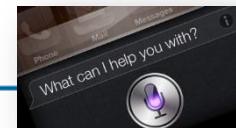
Sometimes I just popup for no particular reason, like now.



1994



2007



2011



3 key factors

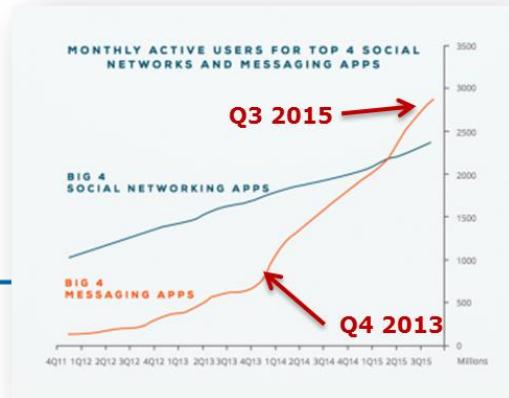
1

Technological Evolution



2

Social Messaging & Conversational Trends



3

2016 Announcements



Channels & Users are (always) evolving

2005



Multichannel
CRM

2010



Social Media
Branding

2013



Social
CRM

2015

2016 2017



Conversational
Marketing

Some figures about apps, mobile web...



Mobile Web Page

57 percent of mobile user will **abandon** web page because of **load time**

<https://blog.kissmetrics.com/loading-time/>

people **hate filling out forms**, especially on mobile

<https://digitalmarketinginstitute.com/blog/5-reasons-mobile-site-makes-your-visitors-furious>

Mobile Application

65 percent of smartphone user **installed 0 new app** per month in 2016

<http://qz.com/253618/most-smartphone-users-download-zero-apps-per-month/>



Social Messaging

3 billion of active user per month on 4 bigger Social Messaging app

<http://www.businessinsider.com/the-messaging-app-report-2015-11?IR=T>

50 minutes spent per day on Facebook, Messenger and Instagram

<https://techcrunch.com/2016/04/27/facediction/>



2

Customer eXperiences are changing

Facebook Messenger Bots UX example



Messaging & AI
are in Facebook
Strategic Roadmap



1 Brand Search



2 Conversation



3 Sharing



text

choice

image

Hey Mark, the next t-shirt from your monthly subscription will ship on 4/15.

Hey Mark, the next t-shirt from your monthly subscription will ship on 4/15.

[View details](#)
[Change color](#)

subscription will ship on 4/15.

Feel free to change the color of this month's shipment below.



Classic T-Shirt
Medium Grey
\$29.99
[zucktshirts.com](#)

[View details](#)

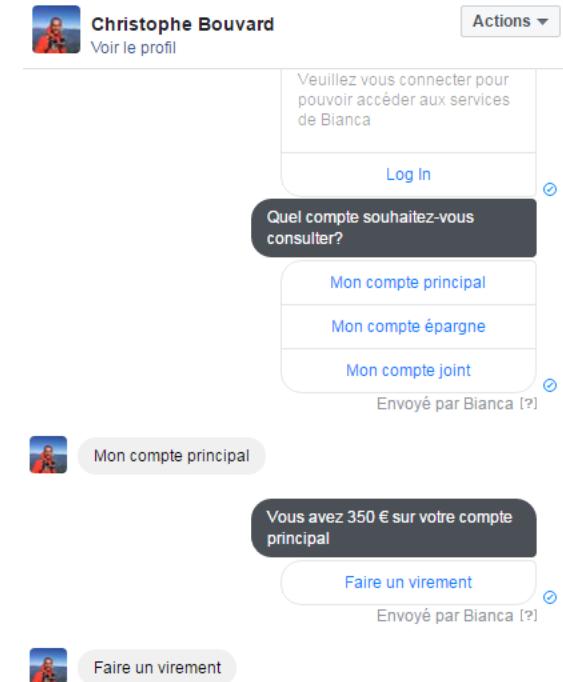
There's the new **Messenger codes** (like QRCode) which can be pasted anywhere for users to scan in and instantly connect to your brand via message.

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an atos company

Facebook Messenger WL Demo



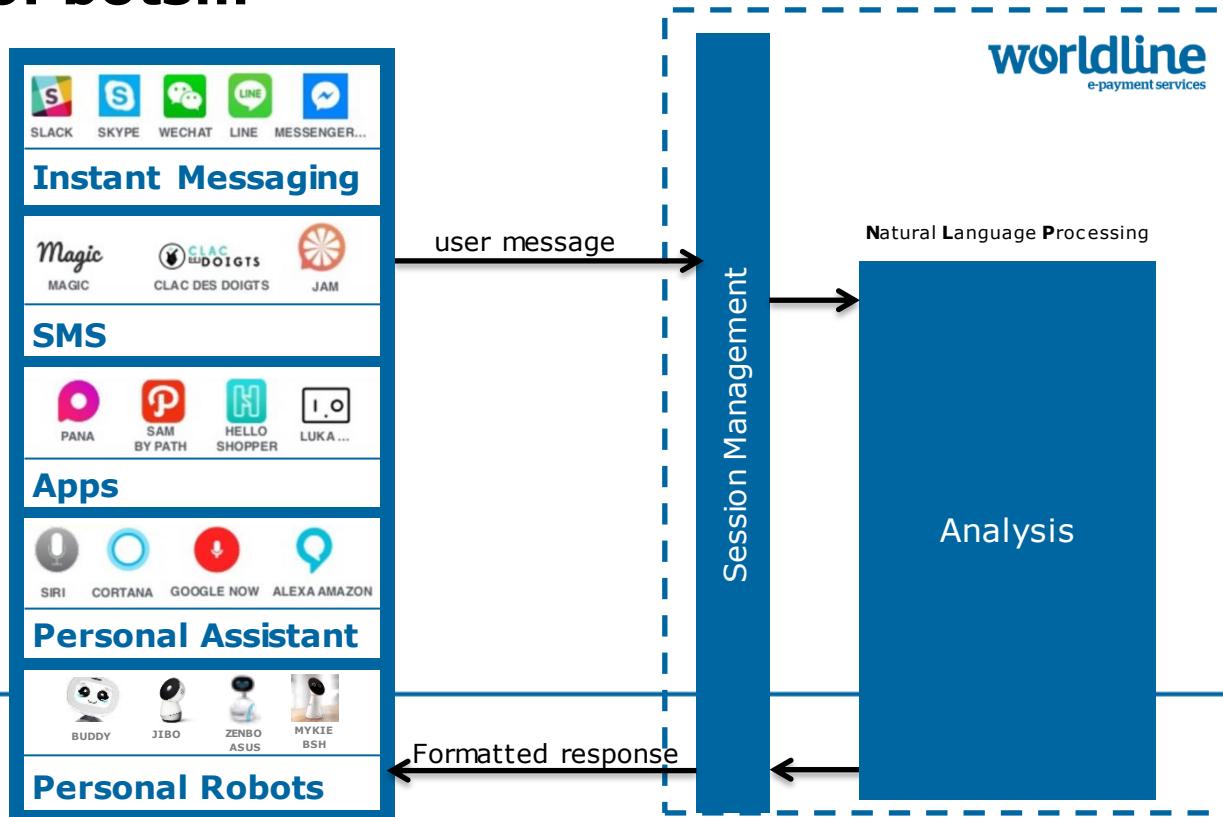
Bianca Digital Assistant
for Banks



* recast.ai + Microsoft Bot framework (node.js)

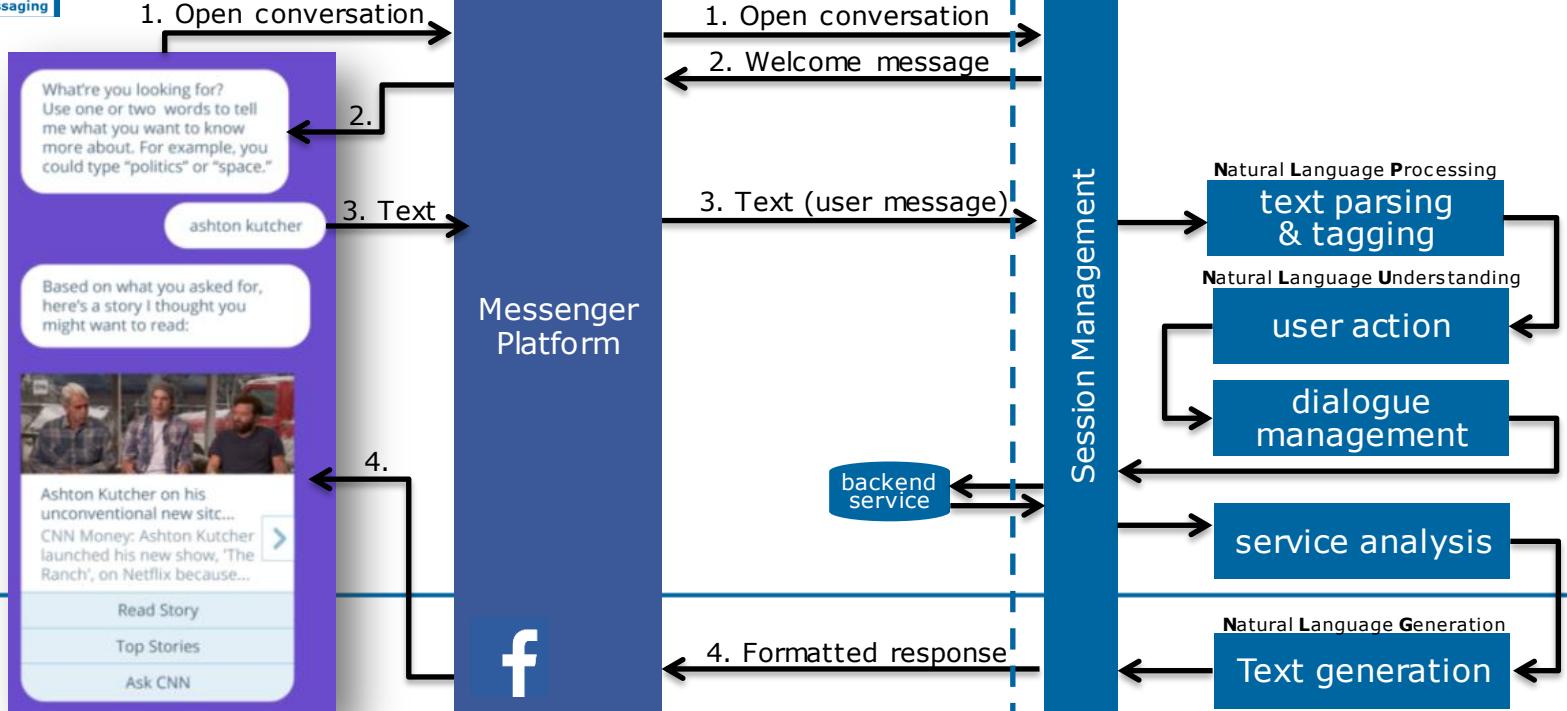
<https://www.facebook.com/Bianca-242592849442166/>

Lots of kinds of bots...



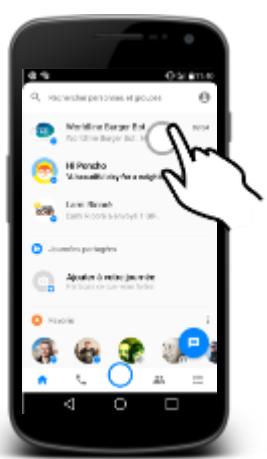
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e-payment services

Facebook Messenger API

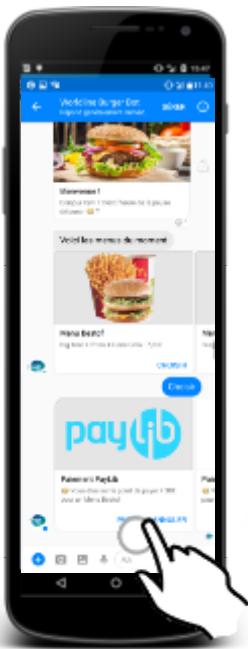


worldline
e-payment services

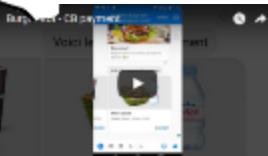
Burger Bot demo (Social bots + Payment)



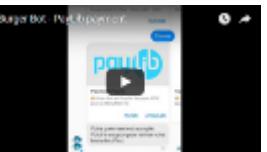
Look for
**Worldline Burger
Bot**



Pay from the
conversation



<https://youtu.be/um-l6PjZFw>



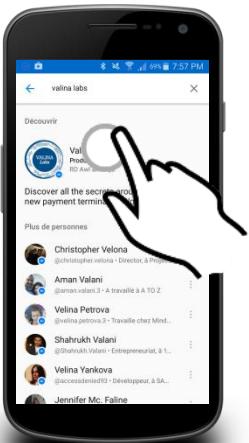
<https://youtu.be/2DWv5GPvb5I>



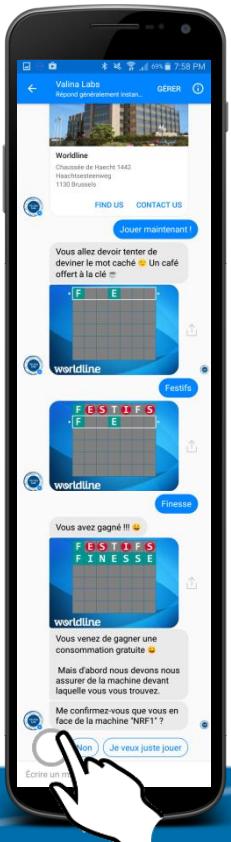
Smart Vending Bot PoC (VALINA + Vending Machine + Social bots)



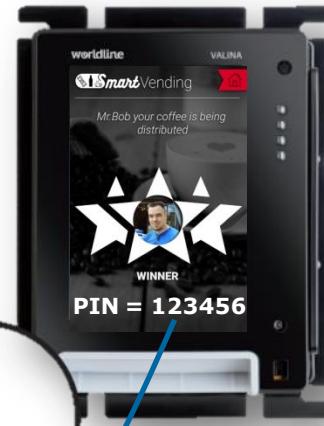
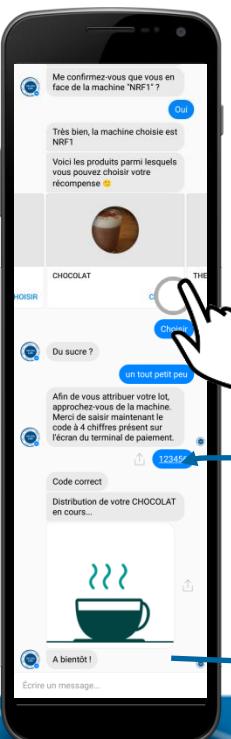
poster



On Facebook Messenger : Looking for VALINA Labs contact and play



If you win, you can select your free drink



thanks to the **PIN** on the VALINA screen you can **confirm** that you are **in front of the vending machine**





4

Why & How create a bot ?

do's & don'ts (in 2017)

O2O eXperience



Mobile Web Page

- to be present/**visible via Google** search (at home, in store, on street, **in mobility**...)
- just for a **simple** and **momentary** (online) interaction

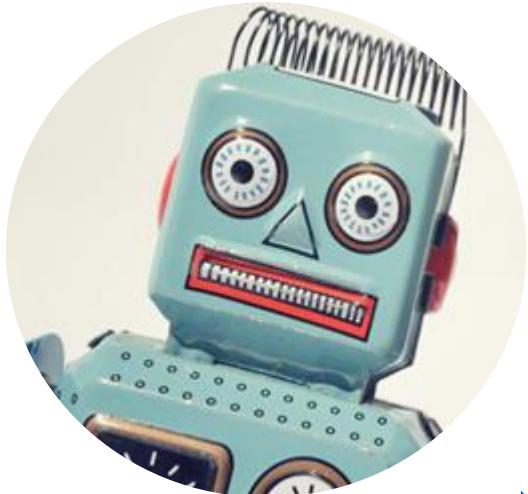
Mobile Application

- for **FANS** and **active users** : the brand is always on the user's mobile (but not necessarily visible...)
- for **long term** "relation"
- for **more graphical** interaction, for **more embedded features** (like indoor location, like augmented reality, like push notifications)

Social Bots

- for **instant relation / interaction**
- for a "**once in a while**" interaction
- to **keep the link** with the user (if the brand want push info)
- to get **more personal information** (?) thanks to a chat discussion

in addition
of existing
interaction's
channels



Selfcare / SelfService
+ **Online Service**



a link to Contact Center
chat to call, chat to chat



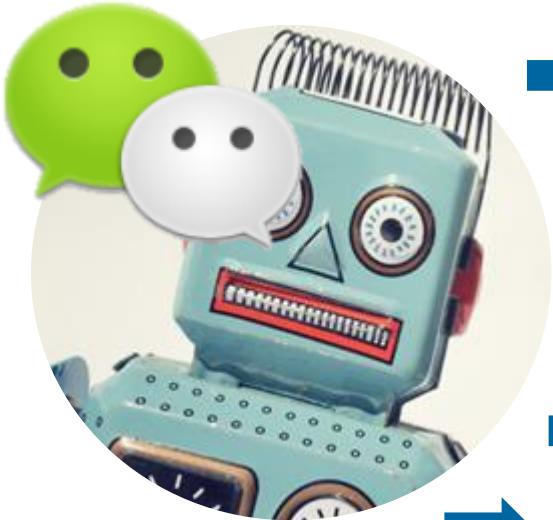
Push channel to keep
the link with the end-
users (and/or in relation with a
transaction)



**more qualified client's
information** for CRM

[China] WeChat Feedbacks

WeChat (bots and mini-apps) **already replaced some channels** of interactions !!!



- **818 million** monthly active users
570 million daily active users
- **Social Bots** are available since 2012 → 60% users have used 3rd-party service
- **Mobile Payment** since 2013
- 83% weChat users **purchase online** products
- **P2P & P2M Payment** since 2014
- 200+ millions of **wallets enrollment**
- 300 000 business accept **in-store WeChat payment**

4

R&D UX project
Smartwatch



Les Wearables

Types





Les Wearables

Montres

- ✓ Suivi d'activité
- ✓ Accéder plus rapidement à l'information
- ✓ Accéder à des applications dédiées aux montres (capteurs)

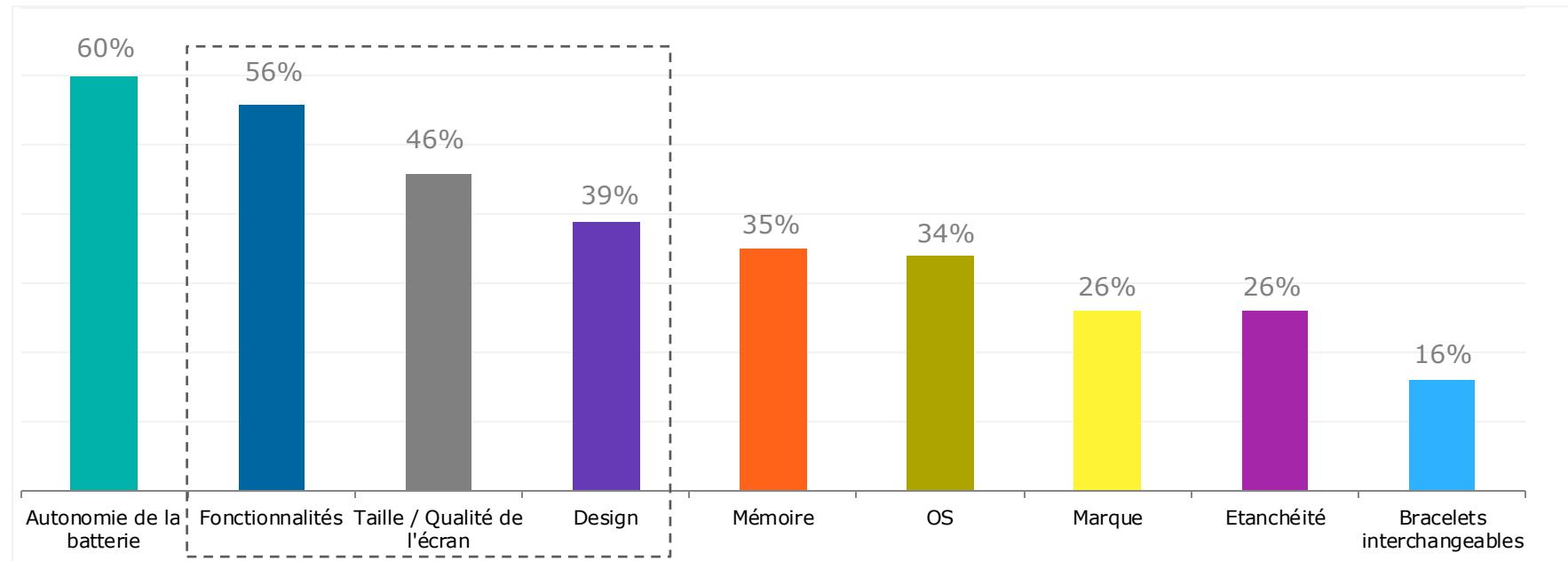
La bonne information au bon moment



Les Wearables

Montres

Attentes des clients





Tests utilisateurs

.....

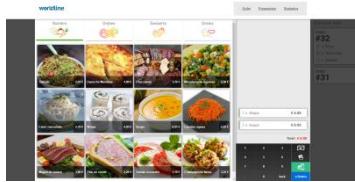
Contexte

worldline
e-payment services

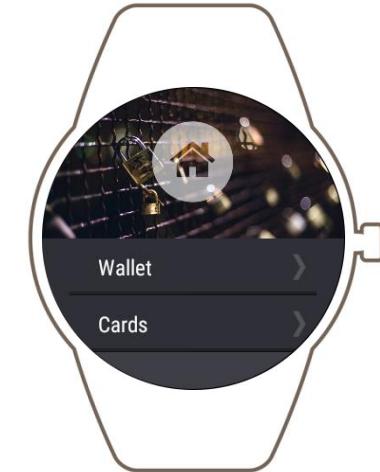
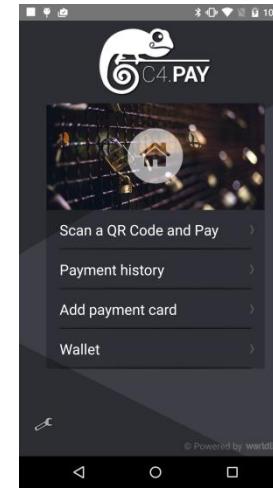
Contexte

C4PShop – Paiement multicanal

Initier une transaction



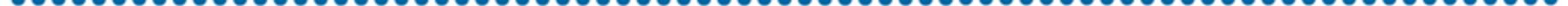
Valider la transaction



Contexte

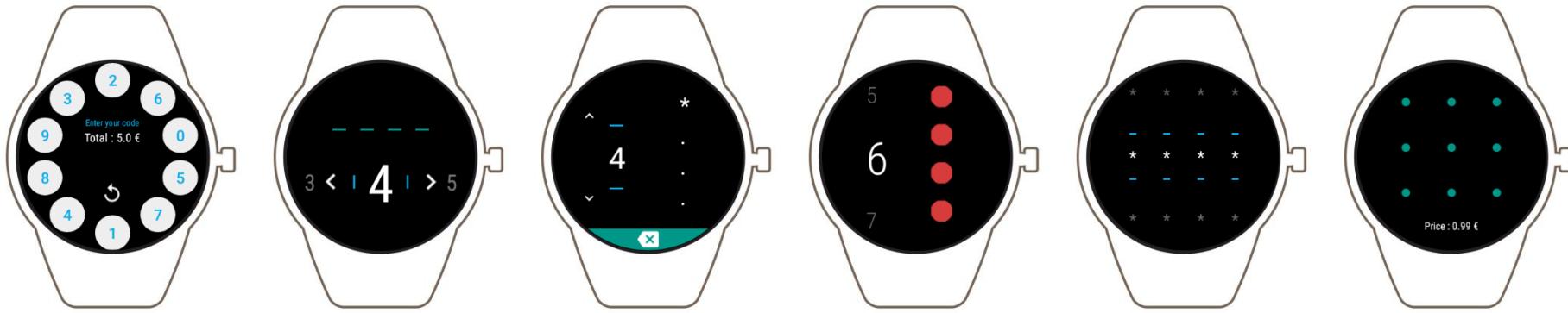
C4PShop – Paiement multicanal





Design

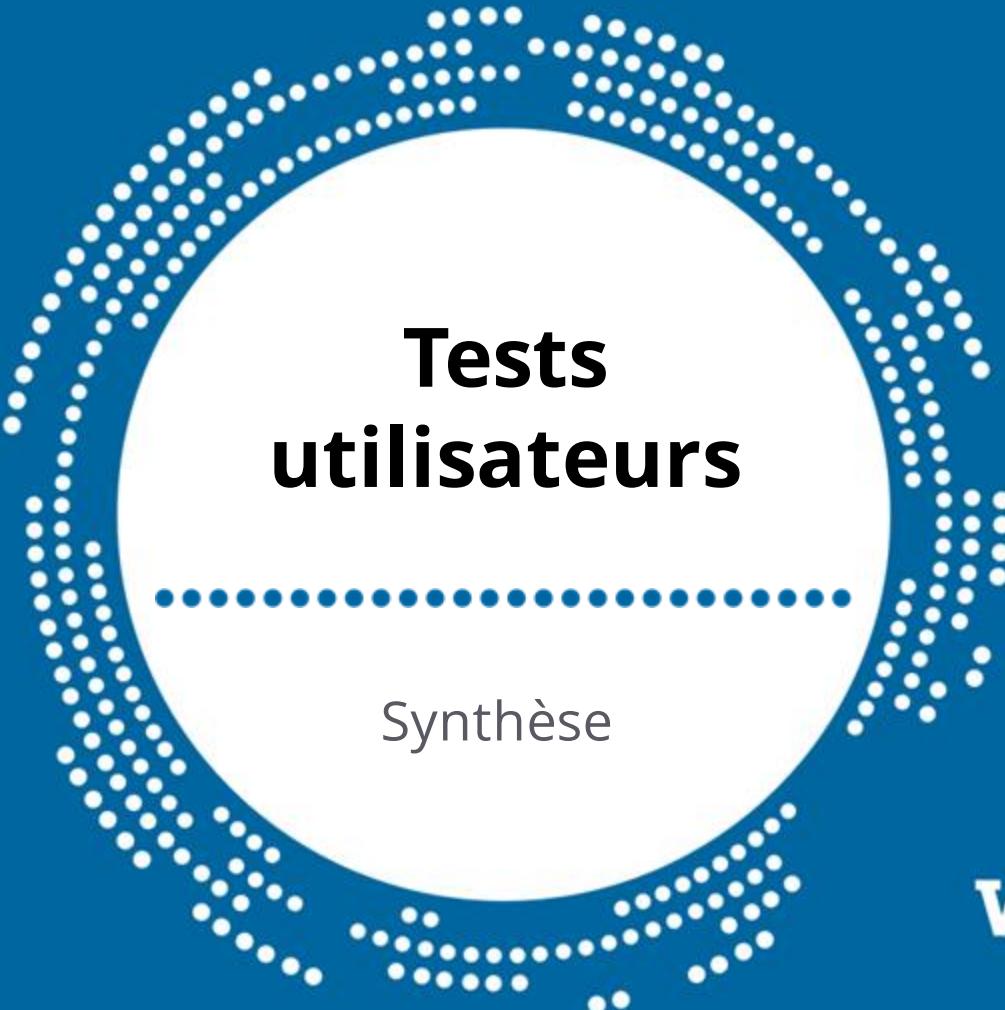
Authentification



Design

Confirmation





Tests utilisateurs

.....

Synthèse

worldline
e-payment services



Tests utilisateurs

Protocole

Objectifs

- Dégager parmi plusieurs propositions d'authentification et de confirmation celles qui semblent la plus pratique, ergonomique et fonctionnelle.

Contexte

- Le test est présenté comme faisant partie du tunnel de commande de l'application C4P Shop. Dans un premier temps le testeur est invité à réaliser son authentification puis lors d'une seconde transaction de répondre par une simple confirmation.



Tests utilisateurs

Protocole

Entretien

- Individuel
- Entre 45 min et 1h15min
- Montre au poignet pour le testeur
- L'interviewer possède une application qui permet de déclencher une authentification (ou confirmation) à la volée. Le temps de réponse est aussi transmit à la fin de l'action.

Montre



LG Watch Urbane W150

Population

- Bureau R&D et Studio

Niveau d'utilisation d'une montre connectée

- Jamais utilisé : 3 pers.
- Déjà manipulé : 3 pers.
- En possède une : 2 pers.



Synthèse

Authentification

Tests utilisateurs

Description de la proposition



- Les chiffres sont affichés de manière aléatoire à chaque authentification.
- 3 feedbacks lors de la saisie d'un chiffre :
 - Le chiffre change de couleur ainsi que son background.
 - Un point pour représenter la saisie.
 - Une vibration de la montre.
- Avant d'afficher le point, le chiffre reste affiché 3 secondes.
- Un bouton permet d'annuler l'ensemble de la saisie.
- Un message invite l'utilisateur à effectuer l'authentification.
- Le montant de la transaction est affiché.



Tests utilisateurs

Retours utilisateurs

Impressions

Rappel un clavier classique

Efficace

Proposition d'un design en forme de calculatrice

Afficher la longueur du code

* ---



Nombres aléatoires sur le clavier

Peut ralentir la saisie

Un standard utilisé par de nombreuses banques

Informations trop petites

Agrandir la police et/ou modifier les couleurs du design

Le code s'affiche trop longtemps

Lors du clic sur un nombre ce dernier reste affiché 3 sec.

Ayant un feedback sur les chiffres, l'affichage de ce dernier peut être supprimé.

Feedback visuel + vibrations

Tests utilisateurs

Description de la proposition



- La sélection d'un chiffre est réalisée via 2 boutons (sous forme de flèche).
- Liste de nombre infinie (... , 8, 9, 0, ..., 8, 9, 0, ...).
- 1 feedback lors de la saisie d'un chiffre :
 - Une étoile indique la confirmation de saisie.
- Les étoiles indiquent aussi la position dans la saisie.
- La validation est automatique quand l'utilisateur valide le dernier chiffre.
- Aucune information sur la transaction.
- Pas de bouton pour effectuer une correction ou recommencer la saisie.



Tests utilisateurs

Retours utilisateurs

Impressions

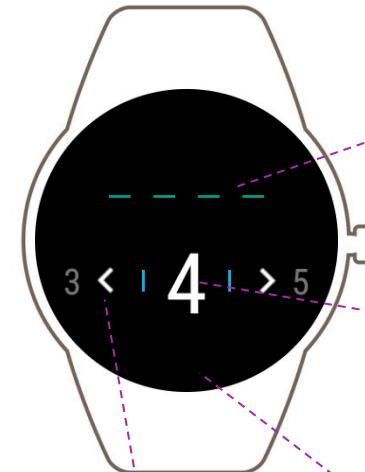
Essaye de swiper pour choisir un chiffre

Regrette l'absence du swipe (même horizontal)

Pas de vibration lors d'une saisie

La sélection horizontale n'est pas commune
(le doigt sur la flèche gauche peut cacher les chiffres)

Préférence pour un swipe vertical



Affichage de l'état d'avancement de la saisie

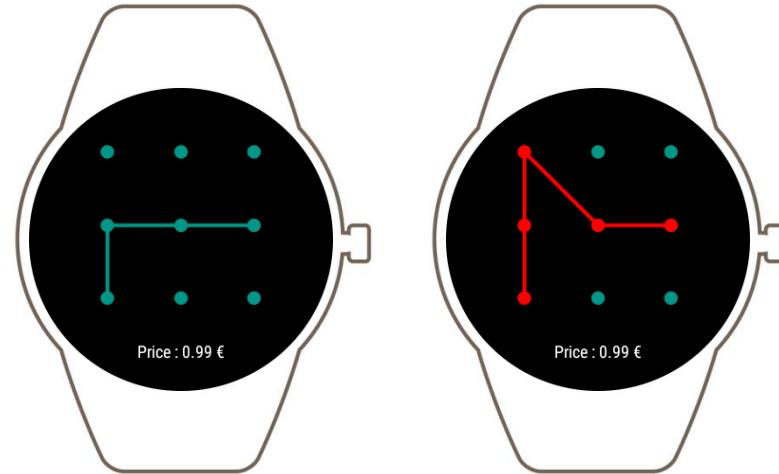
Chiffre trop gros, sécurité
Taille de police plus petite ou couleur plus foncée

Sécurité
(Calcul des tapes pour déterminer le code)

Pas de bouton annuler
Ajouter un bouton de correction pour annuler la dernière saisie

Tests utilisateurs

Description de la proposition



- Le code est saisie à l'aide d'un pattern.
- Les points ne représentent pas des chiffres.
- 2 feedbacks lors de l'authentification :
 - Le suivi du tracé par des lignes.
 - Une vibration au passage sur un point.
- La validation est automatique quand l'utilisateur réalise le bon pattern.
- Un pattern erroné s'affiche en rouge.
- Information sur la transaction.



Tests utilisateurs

Retours utilisateurs

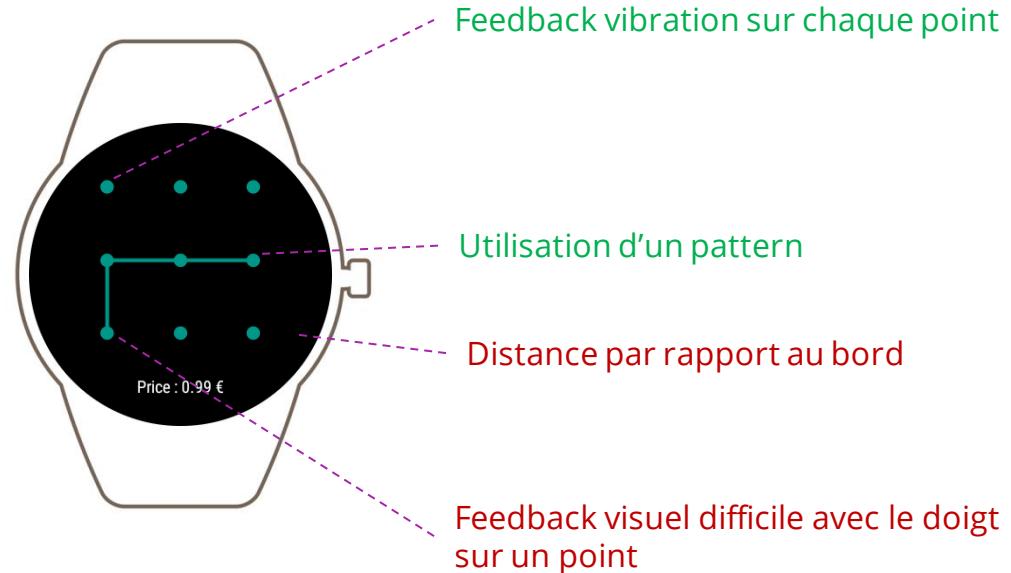
Impressions

Etre concentré

Comprend l'utilisation d'un pattern

Pas vraiment une saisie de code

Avoir un feedback plus visible durant la sélection
(le doigt étant posé sur le point courant)



Tests utilisateurs

Conclusion



- Ensemble des **chiffres** visibles
- Feedback visuel et vibration lors d'une saisie
- Visuel sur l'**état de la saisie**
- Bouton de **correction**
- **Informations** sur la transaction
- Liste de sélection **verticale**



Synthèse

Confirmation



Tests utilisateurs

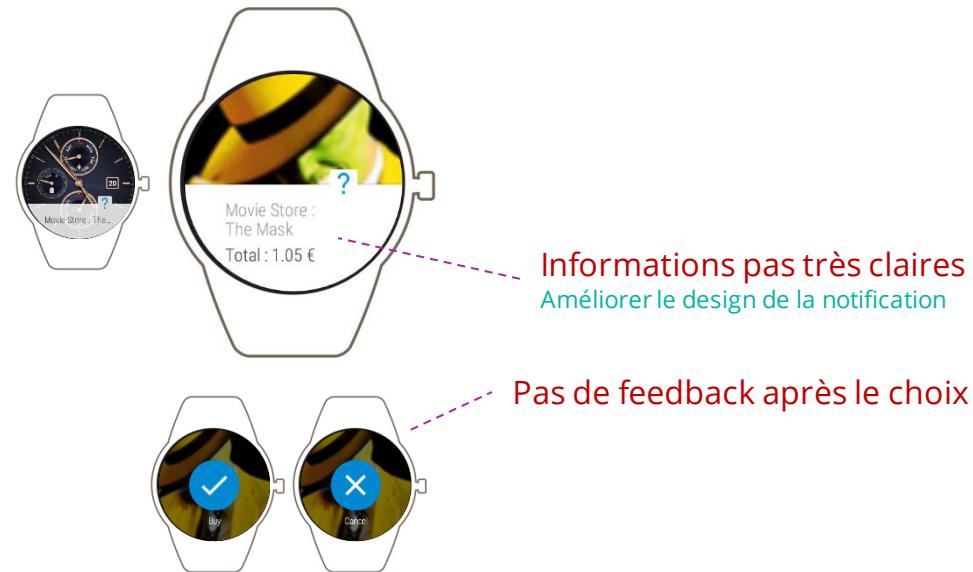
Retours utilisateurs

Impressions

Répondre directement dans la notification

Plutôt utiliser la notification pour faire ouvrir une application

Proposition possible mais hors contexte





Tests utilisateurs

Retours utilisateurs

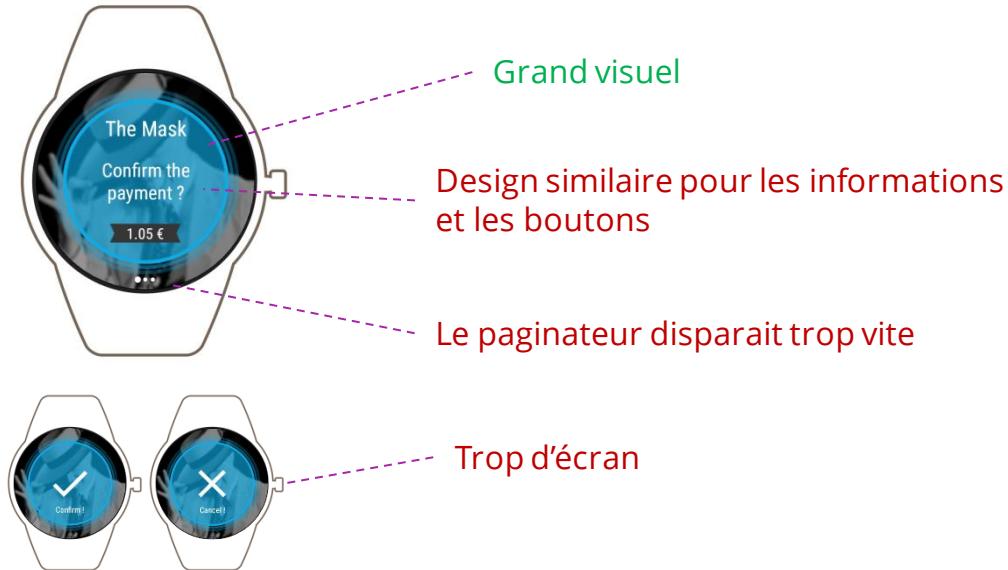
Impressions

Les informations sont claires

Manque de feedback à la validation

Afficher en permanence les dots de pagination

Se rapproche de la notification





Tests utilisateurs

Retours utilisateurs

Impressions

Pas de bouton annuler

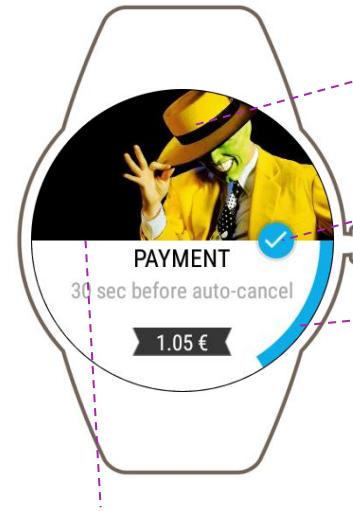
Le timer provoque un stress

Pense que timer = auto-validation
(ne lit pas la directive)

Un délai de 30 secondes est trop long
(pour ce contexte)

Coupler le timer avec un bouton annuler
Timer autour du bouton annuler

Inverser le bouton valider avec le prix



Grand visuel

Ne perçoit pas l'image valider comme un bouton

Disposition du timer



Tests utilisateurs

Retours utilisateurs

Impressions

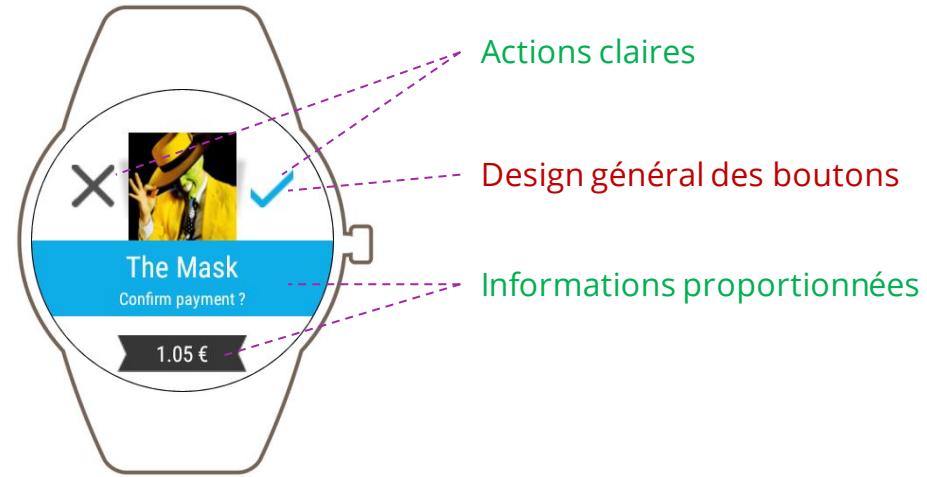
Proposition efficace

Les actions sont claires

Ajouter un timer autour du cancel (Auto-cancel)

Pas forcément utile dans un tunnel de commande

Améliorer le visuel des boutons





Tests utilisateurs

Retours utilisateurs

Impressions

Répondre avec la voix n'est pas l'idéal

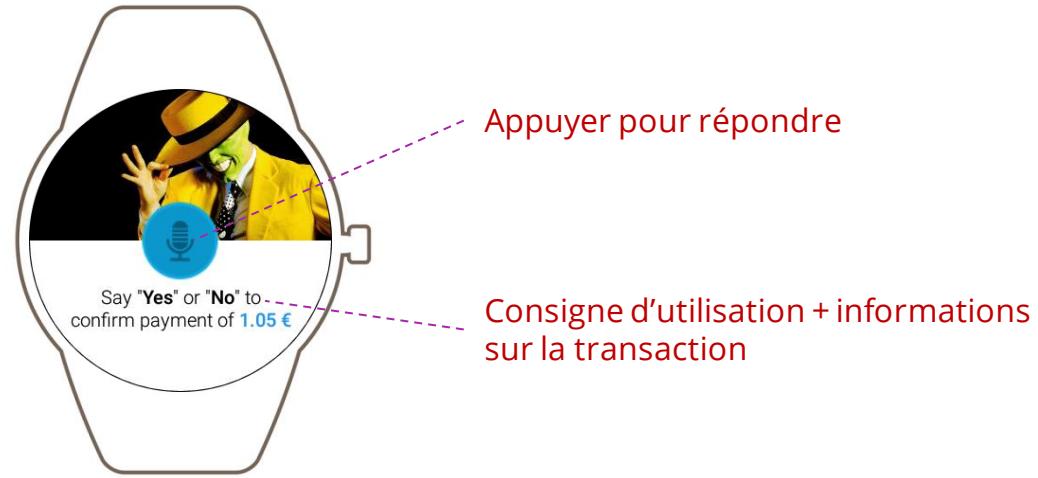
Pense pouvoir parler directement

Appuyer pour répondre est un frein à l'utilisation de cette fonctionnalité

Difficile dans un environnement bruyant

Augmenter la zone de saisie à l'ensemble du cadran

Trop de texte



Tests utilisateurs

Conclusion



- **Ensemble des actions** sur le même écran
- **Feedback** visuel et vibration
- **1^{er} action** = réponse
- **Design** des actions
- Informations **claires** et **succincts** sur la transaction
- Timer sur l'action à effectuer

Suite aux tests sur la smartwatch

- ▶ Intégration dans des démonstrateurs
 - C4Pay
 - WL Pick & Go
- ▶ Acquisition d'expertise concernant le développement et le design d'application pour smartwatch





→ support WL. clients in their Digital Transformation

think Mobile first (*but not mobile only*).

think connected devices.





R&D UX project
**WL Connected piggy
bank**

Internet Of Things, How will it impact the digital banking

1

Market insight

2

Worldline piggy bank



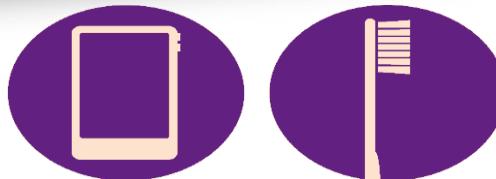


**Market
insight**

New usages



4.8
billions
of people got
a mobile



Geometric : How health consumers engage online, 2013



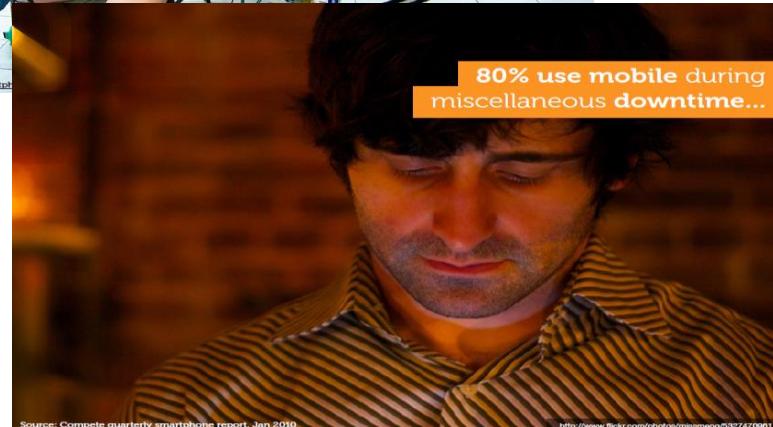
4.2
billions
of people got a
tooth brush

September 2014:
10 millions of iPhone 6
sold in 3 days!
(1 min 3 months)

Digital moments grow fast



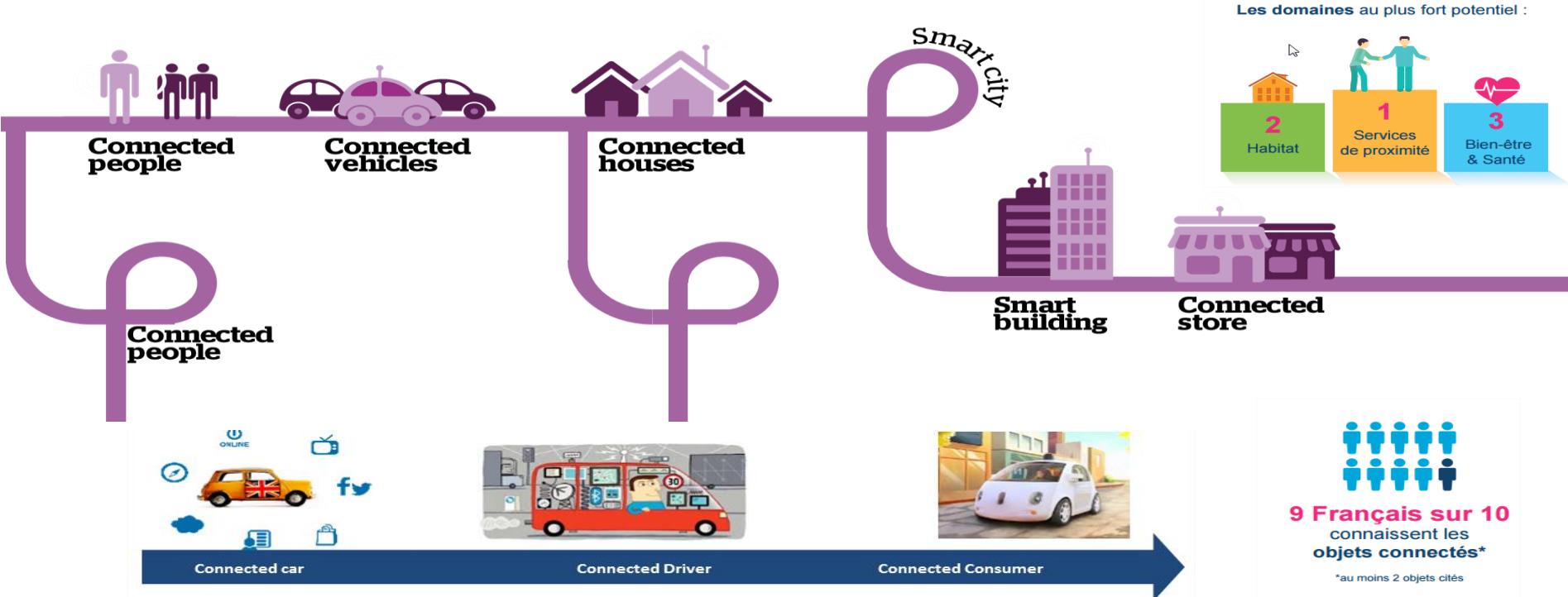
Source: Compete quarterly smartphone report, Jan 2010



Source: Compete quarterly smartphone report, Jan 2010

<http://www.flickr.com/photos/misameng/5327470061>

In a more & more connected world...





Worldline : an active actor in this revolution

Worldline's
projects



*Connected
Fleet*



*Connected
Objects*



*Connected
Car*



*Connected
Appliances*



*Connected
Patient*



*Connected
Home*



*Connected
**Payment
Terminals***



*Connected
Infrastructure*



*Connected
Industry*

Selected clients



MICHELIN
solutions
A service of Michelin group



RENAULT
Renault for life

gorenje

B/S/H/



santeos
e-health services



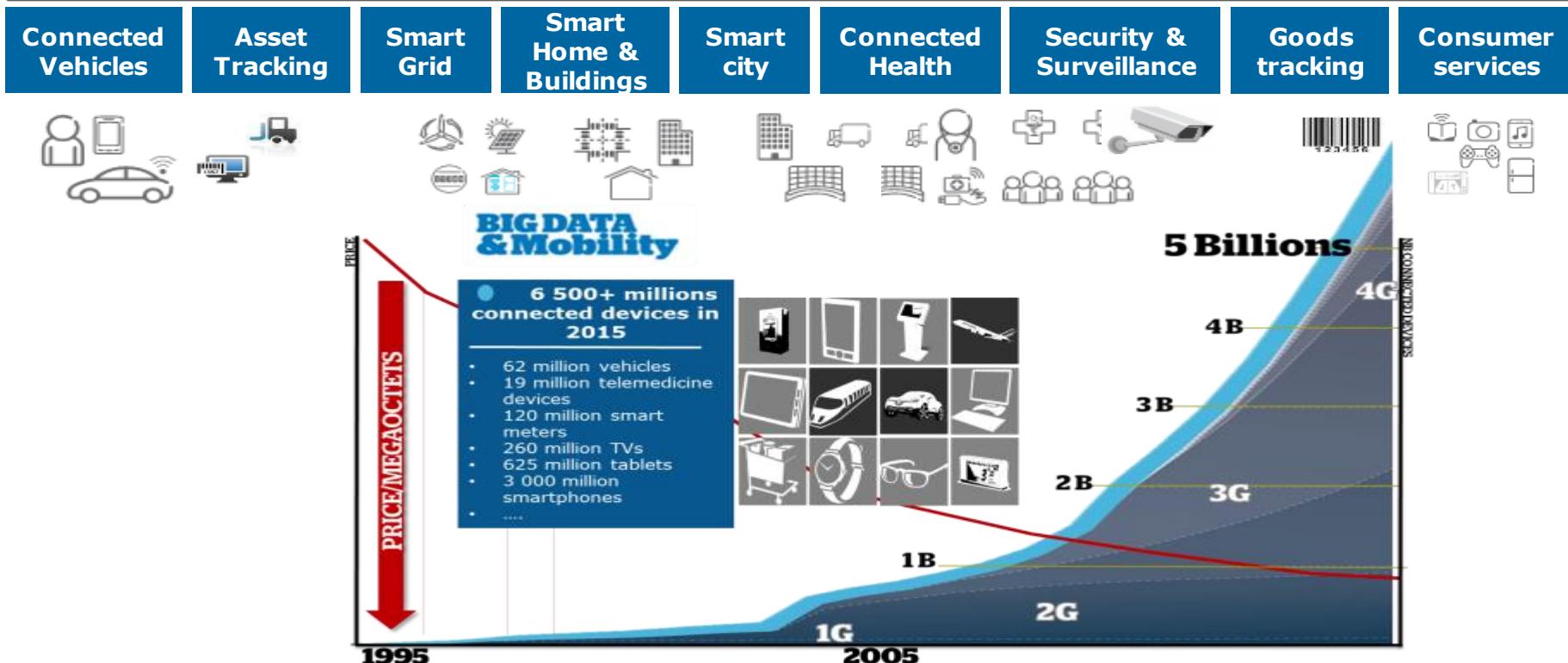
FARMALINK

Parrot



SIEMENS Dräger

iOT revolution





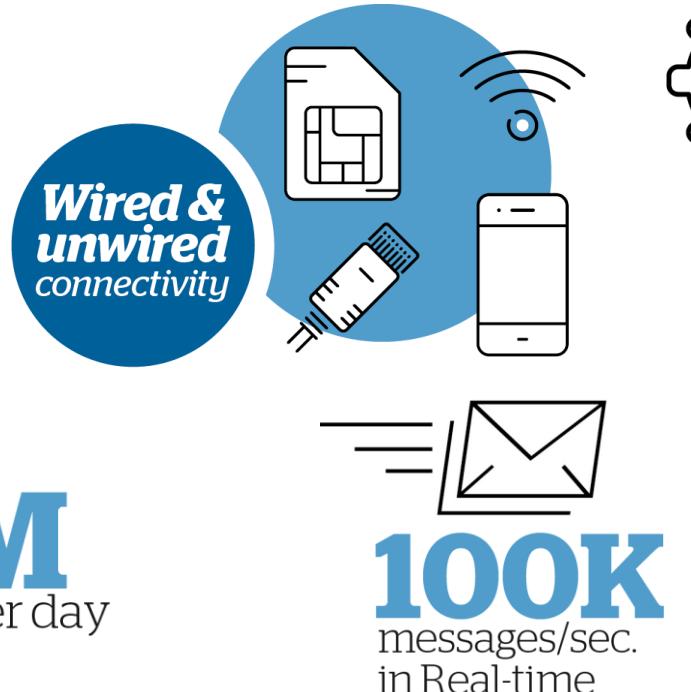
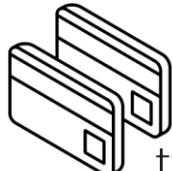
Worldline : an active actor in this revolution

Some figures

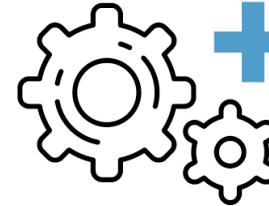
Objects connected in over **130** countries



+**70M** transactions per day



+**20** protocols managed



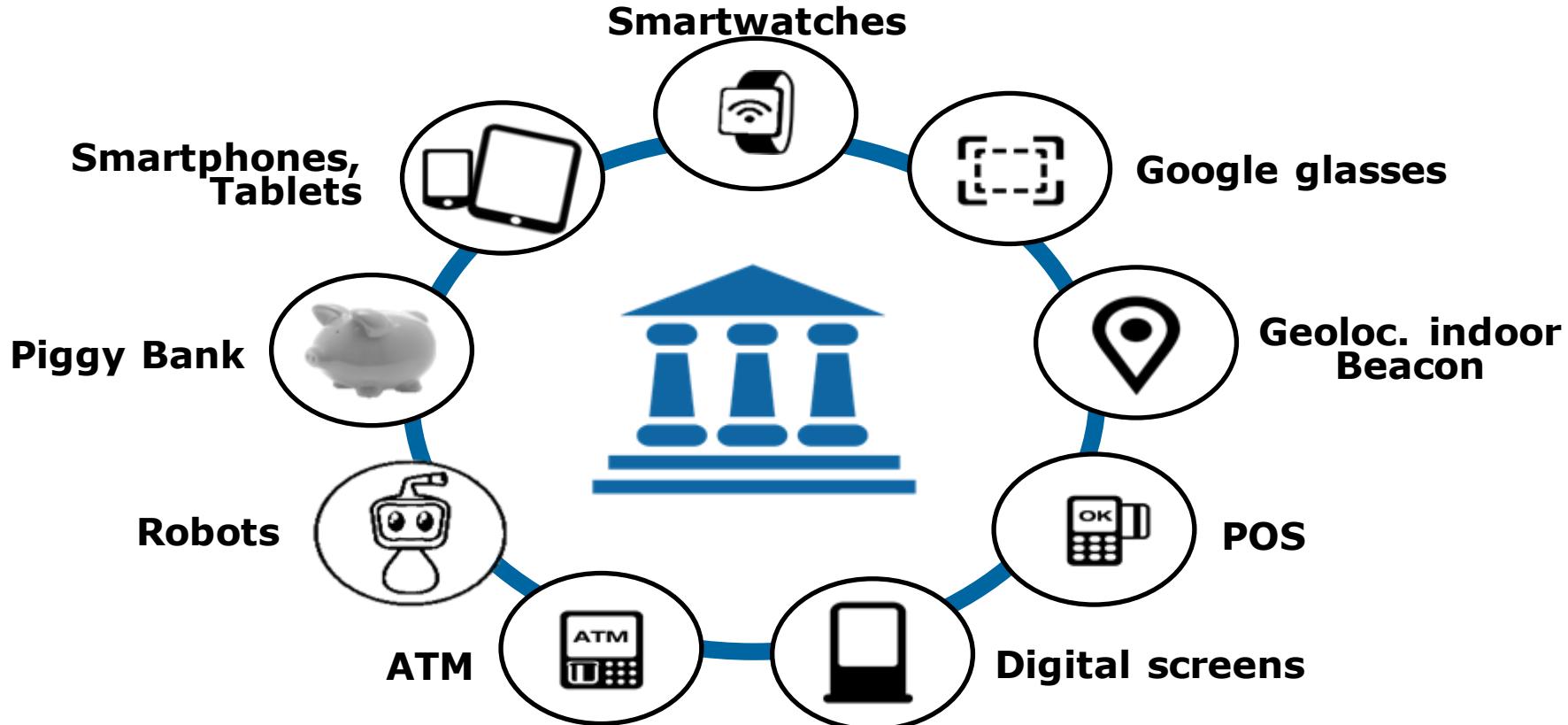
More than **2M** objects connected

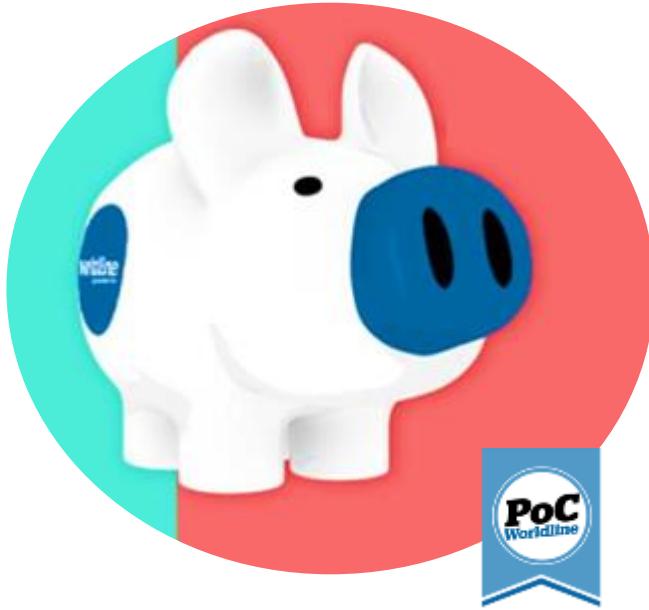




iOT
&
Digital
Banking

iOT in the banking sphere





Worldline

Connected piggy bank

.....

Smart savings for children

worldline
e-payment services

Business Models



- Boost savings accounts
- Building Loyalty relationship
- Enrol early customer outside bank network
- Build network database around the household

Worldline Piggy bank



A piggy bank ...



payggy
powered by Worldline



...connected to bank



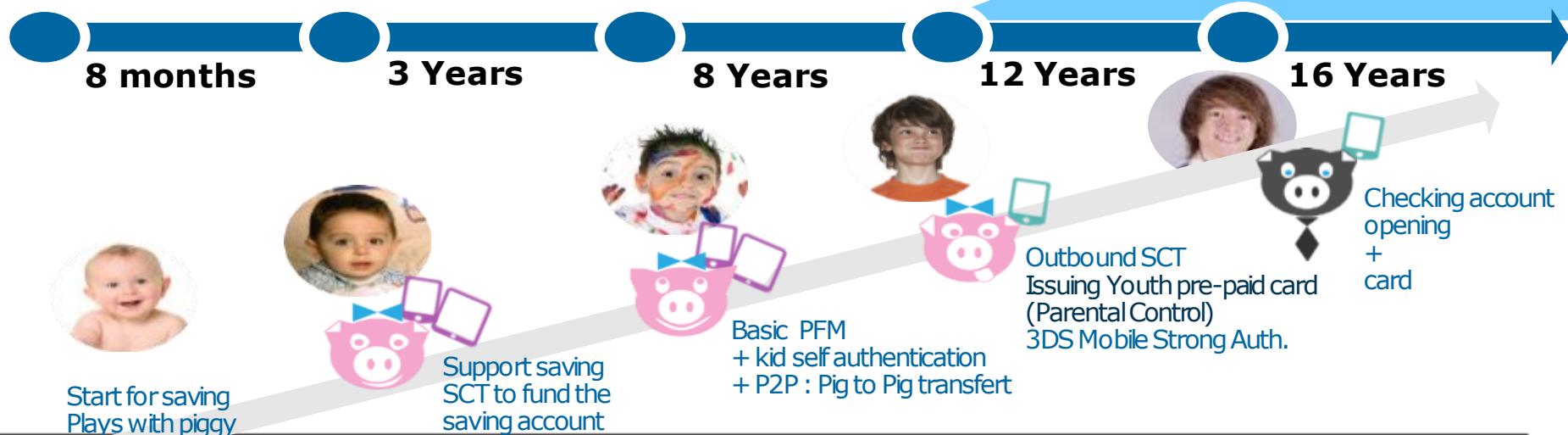
...a simple and playful mean **to interact** with young people

Worldline Piggy bank



Théo grows up as his piggy bank

1. Saving account (under control of parents)
2. adding PFM & social networking
3. propose pre-paid card including mobile Strong authentication
4. open a checking account and propose card evolutions



Conclusion



Funny and easy
savings



Playing and
communicate



Attract & retain clients
Digital banking for kids

6

R&D UX perspectives **Energy & IoT**



→ support WL. clients in their Digital Transformation

think Mobile first (but *not mobile only*).

think connected devices

in multi-(new-)device world





R&D UX perspectives **Heasy robot**

Context

05/01/2017 - Communication:

Upon CES, Worldline and Hease Robotics signed a partnership

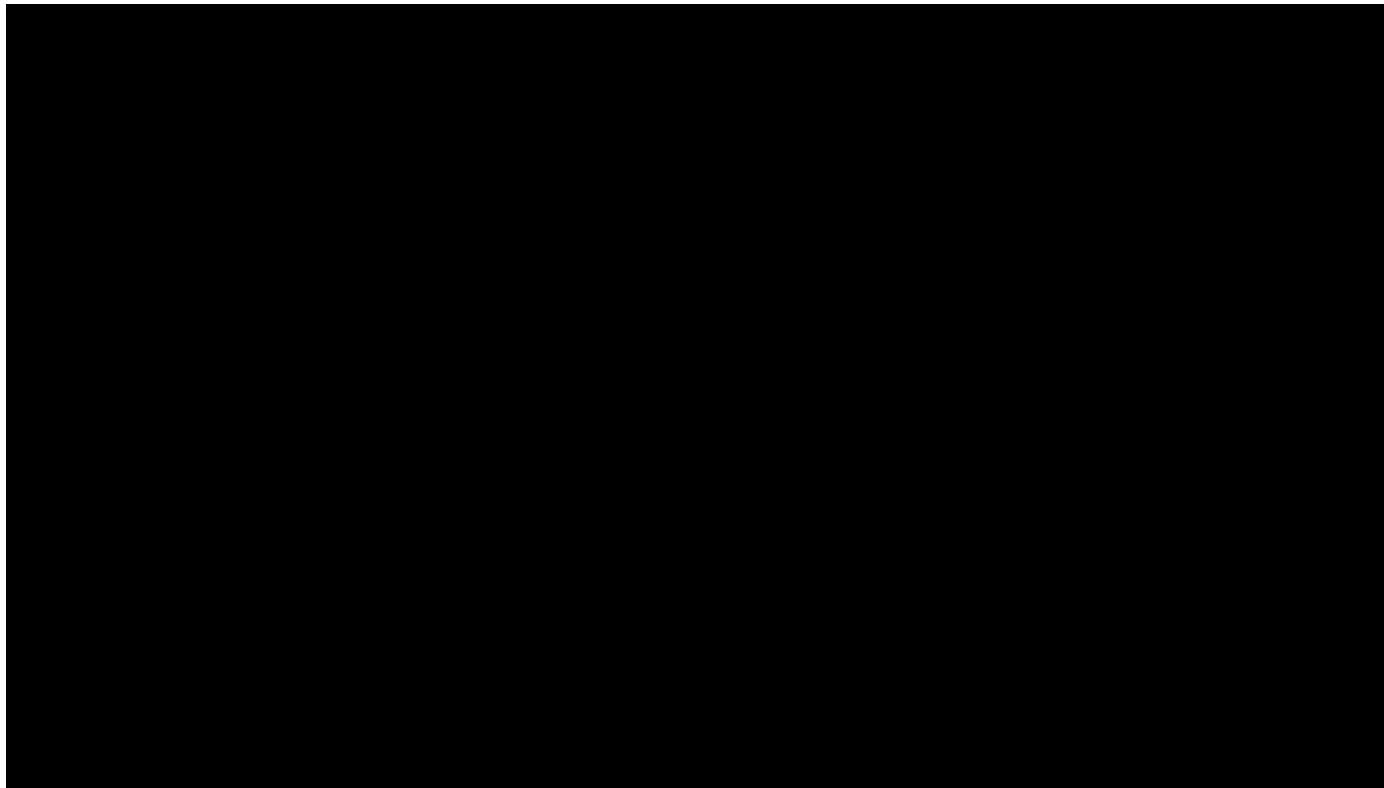


http://worldline.com/en-us/home/media-center/press-releases/2017/pr-2017_01_05_02.html
<http://heaserobotics.com/2017/01/05/worldline-et-hease-robotics-ont-signe-un-partenariat/>





Heasy from Hease Robotics

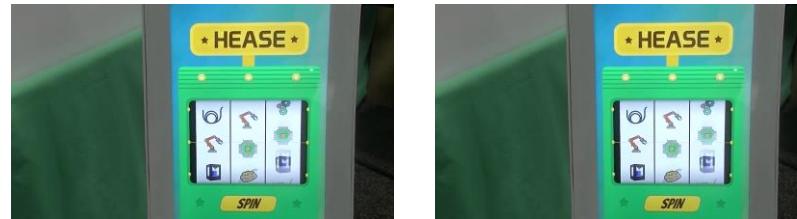


Heasy from Hease Robotics



Heasy Concept / **human interactions**

- **autonomous** (!= Beam solution)
- pretty **big** robot (1,55m)
- no arm (to not scare)
- **no voice interaction** (like Pepper) but **touch** (19" touch screen)
- loud speaker (**high volume**)
- **emotion** through « head screen » (led matrix + rotation)



Heasy from Hease Robotics

- ▶ Which services ?
 - Heasy is designed for the **Retail** Industry & **Hospitality**
 - Heasy capacity
 - **to give information,**
 - **entertain,**
 - **guide &**
 - **welcome** your public
 - **Video contact** center (if self-service is not enough)
 - Contact in the screen + webcam in the head
 - **Sale** if payment could be available (mobile wallet but also Credit Card !)

Full HD 19" **touch screen**





Next Steps ?



- Heasy with a Payment Terminal

- New communication during InnoRobo Event
 - 16-18 May 2017
- PoC available on the booth
 - Payment Terminal integration
 - Movie theater use case

- Others ideas integration/combination

- Video Processing (Face Detection & Identification, Product Recognition...)
- Swarm computing & cloud robotics
- Natural interaction

- Other use cases

- In store
- Restaurant & Fast food
- Stadium, Concert, Events



Movie theater use case

INNO EVENT
ROBO

- ▶ Integration of the Valina Payment terminal



All-in-one VALINA

<http://worldline.com/content/dam/worldline/documents/publications/brochures/valina-2p-english.pdf>





Movie theater use case

INNO EVENT
ROBO

► Main features

- Cinema quizz – helps the client to find a film
- Ticket purchase
 - Tickets choice – allows the user to choose a session, number of places, etc
 - Tickets payment
 - Donation
 - Credit on NFC loyalty card

► Could also be implemented

- Information
- Film recommendation
- Send ticket by email, SMS
- Interaction based on emotion recognition
- Loyalty
- Subscription enrolment
- Viewers first impression filmed -> added to the film page
- feedbacks





Movie theater use case at Innorobo 2017





Conclusion

Our next challenges

Iot & Payment

- Donation box
- Payment in cars



Seamless experience in retail

- Smart shelves
- Car licence plate recognition
- Wearable & emotion recognition

After chatbots, personal assistants and robots based on voice interaction

