








PROCEDURE						
						
Drain the washer fluid tank	Take 15mm Wrench	Unmount the washer fluid tank	Remove the washer fluid tank	Inspect the washer fluid tank	Replace the washer fluid tank	Refill the system
PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER
0000001245	0000001255	0000001273	0000001273	0000001273	0000001274	0000001274



Przemysłowe platformy integracyjne dużych producentów

adam.gasiorek@ttpsc.pl

Kim jesteśmy ?

Software Integrator PTC Solution Center



13 lat partnerstwa z PTC

200 programistów, platforma Windchill



5 lat partnerstwa z PTC

20 inżynierów, platforma ThingWorx



Wdrożenia, prace B+R

Platformy ThingWorx, Unity, Hololens



Zaufany partner ekosystemu PTC

Usługi PLM, IoT, AR dla klientów i partnerów PTC





Człowiek



AR



Pełny PLM



IoT



AI



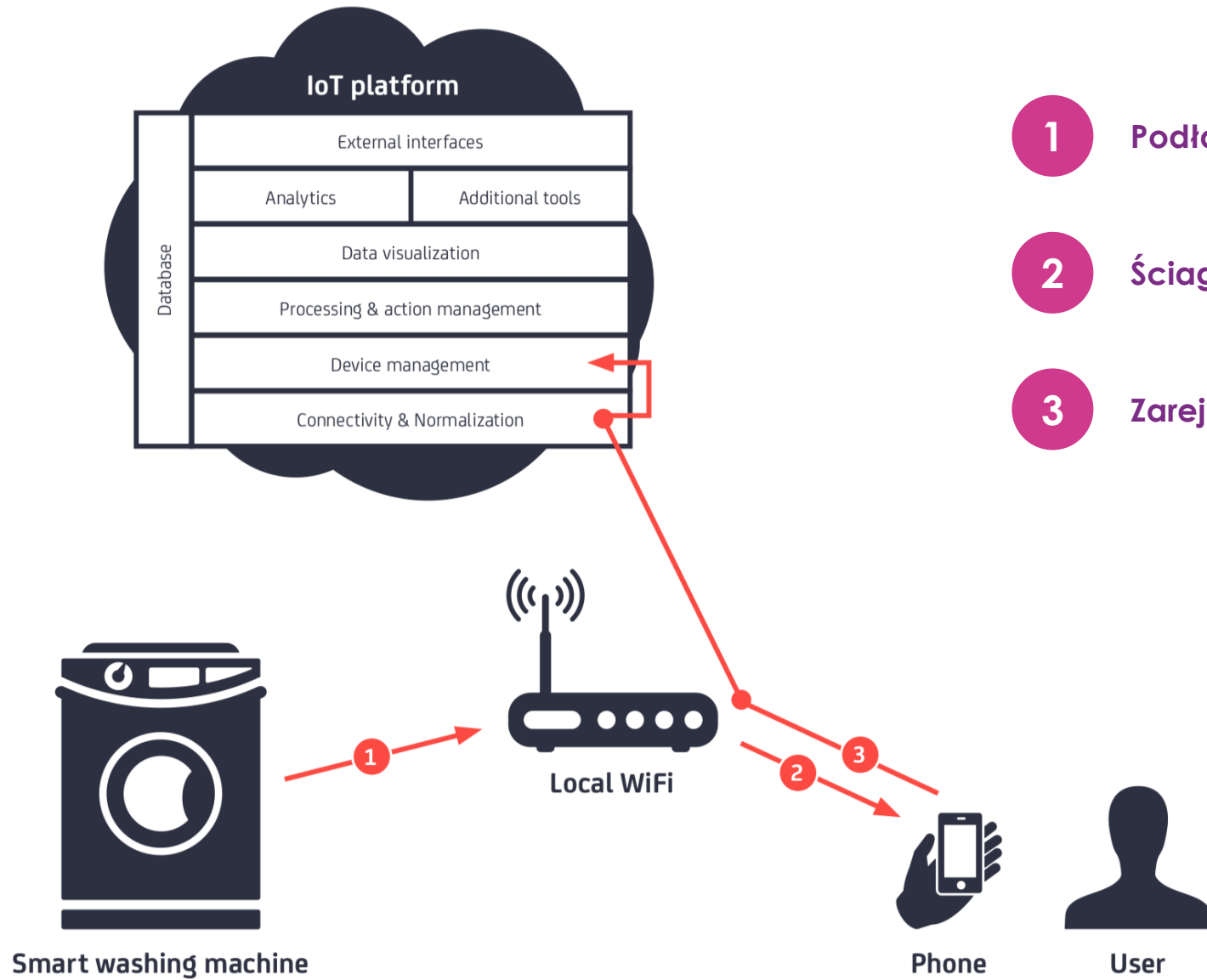
Platformy i efekt sieciowy

Trendy

Platformy IoT – główne bloki funkcjonalne



Platformy IoT – przykład #1

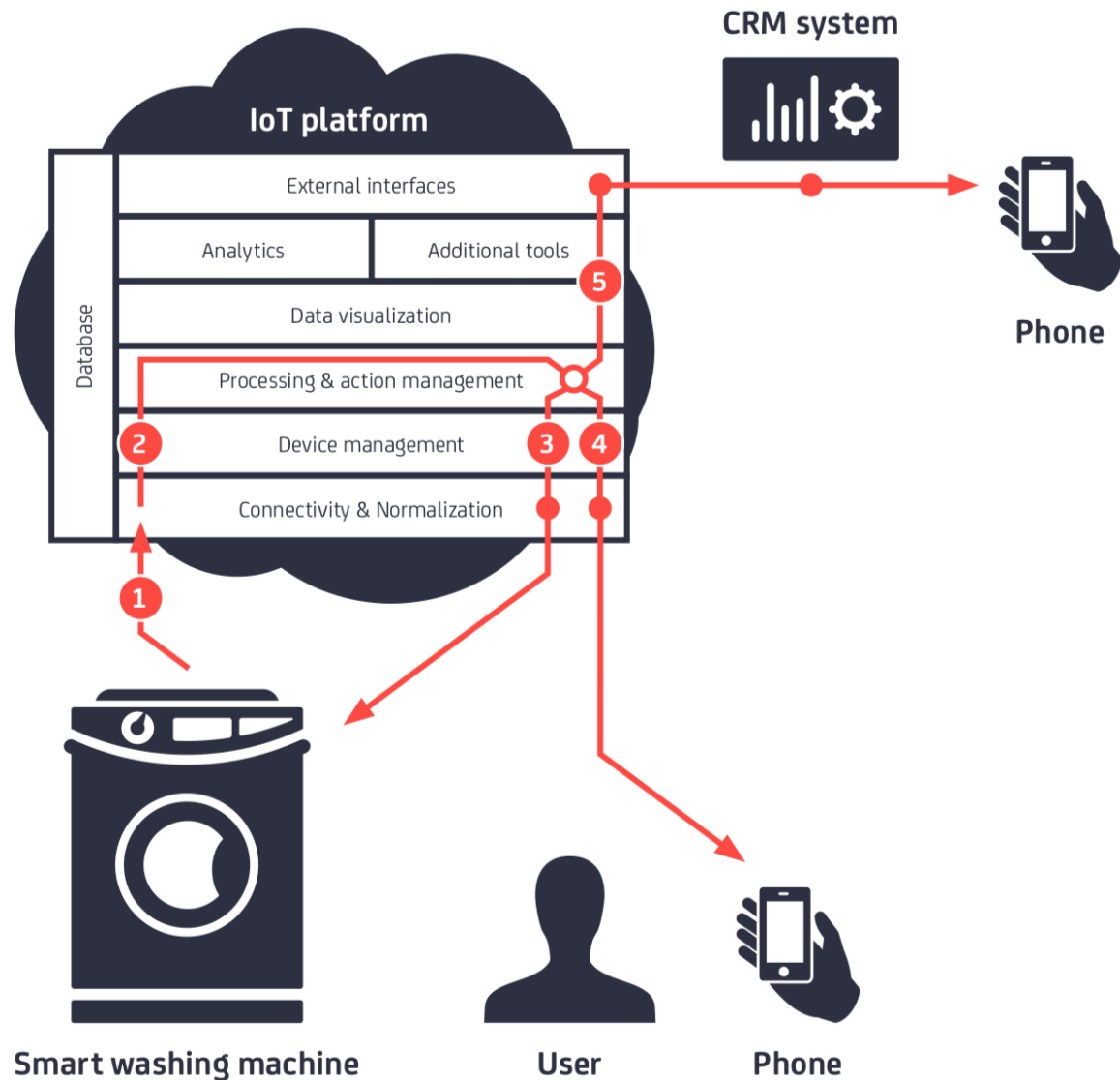


1 Podłącz urządzenie do lokalnej sieci WIFI

2 Ściągnij „apkę” producenta

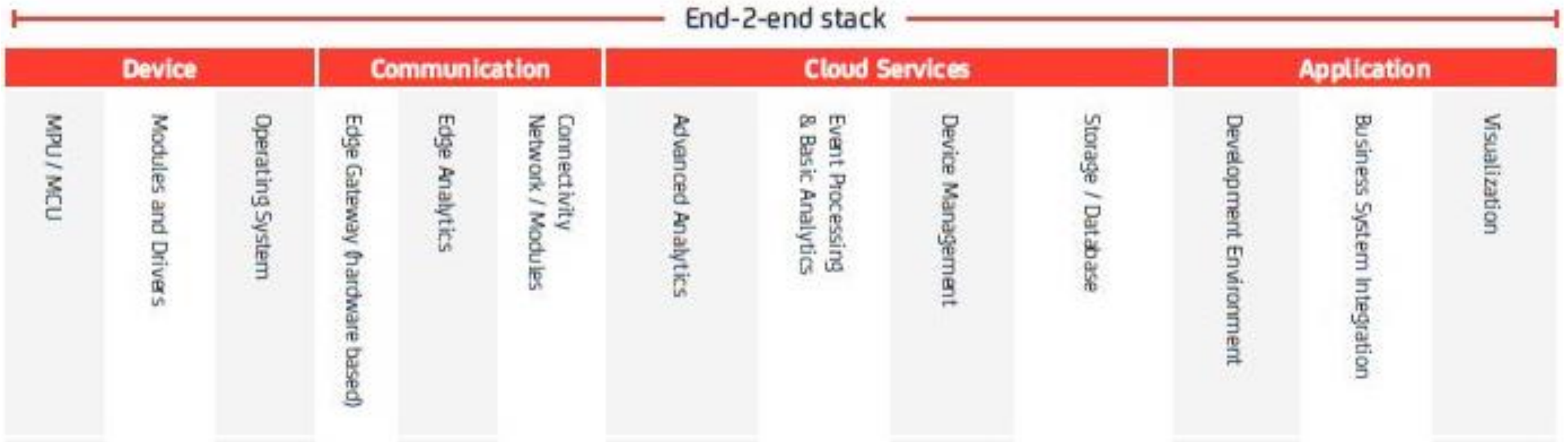
3 Zarejestruj urządzenie na platformie IoT

Platformy IoT – przykład #2



- 1 Ciśnienie wody niższe niż zwykle
- 2 Silnik reguł wskazuje trzy niezbędne działania:
(a) wyłączyć urządzenie
(b) powiadomić użytkownika
(c) powiadomić obsługę klienta
- 3 Urządzenie zostaje zdalnie wyłączone
- 4 Użytkownik otrzymuje powiadomienie
- 5 Obsługa klienta otrzymuje powiadomienie

Platformy przemysłowe – stos technologiczny





Wiodący dostawcy platform IoT

Components		Definitions	Microsoft	IBM	Google	amazon	ptc	intel	GE	SAP
Application	Visualization	presents device data in rich visuals and/or interactive dashboards	✓	✓	✓	✓	✓		✓	✓
	Business System Integration	enables integration with existing business systems	✓	✓	✓	✓	✓		✓	✓
	Development Environment	offers an integrated development environment with SDKs for creating apps/services	✓	✓	✓		✓	✓		✓
Cloud Services	Storage / Database	cloud based storage and database capabilities (not including on premise solutions)	✓	✓	✓	✓			✓	✓
	Device Management	enables remote maintenance, interaction and management capabilities of devices at the edge	✓	✓		✓	✓	✓	✓	✓
	Event Processing & Basic Analytics	processes events and handles big data analytics	✓	✓	✓	✓	✓		✓	✓
	Advanced Analytics	performs advanced stream analytics and machine learning	✓	✓	✓	✓	✓		✓	✓
Communication	Connectivity Network / Modules	offers connectivity network / hardware modules enabling air interface connectivity						✓		
	Edge Analytics	enables analytics, time-sensitive decisions and local compute on a smart / edge device	✓	✓			✓	✓	✓	✓
	Edge Gateway (hardware based)	enables manageability, security identity interoperability based on a Cloud enabled hardware device						✓	✓	
Device	Operating System	offers low-level system software managing hardware, software and runs applications	✓		✓			✓		
	Modules and Drivers	offers adaptable modules, drivers, source libraries that reduce development and testing time	✓	✓		✓	✓	✓	✓	✓
	MPU / MCU	offers multi-purpose programmable electronic devices at microprocessor or microcontroller level						✓		

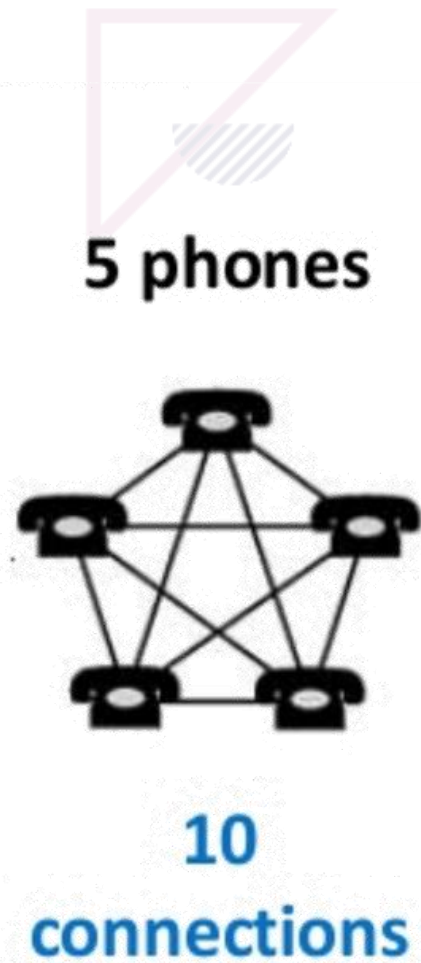
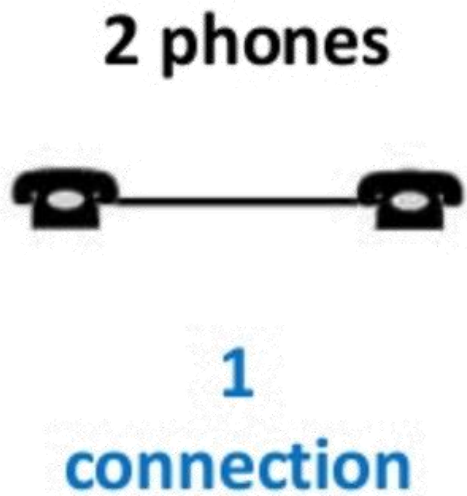
Dlaczego platformy ?

SOMETHING HAS CHANGED

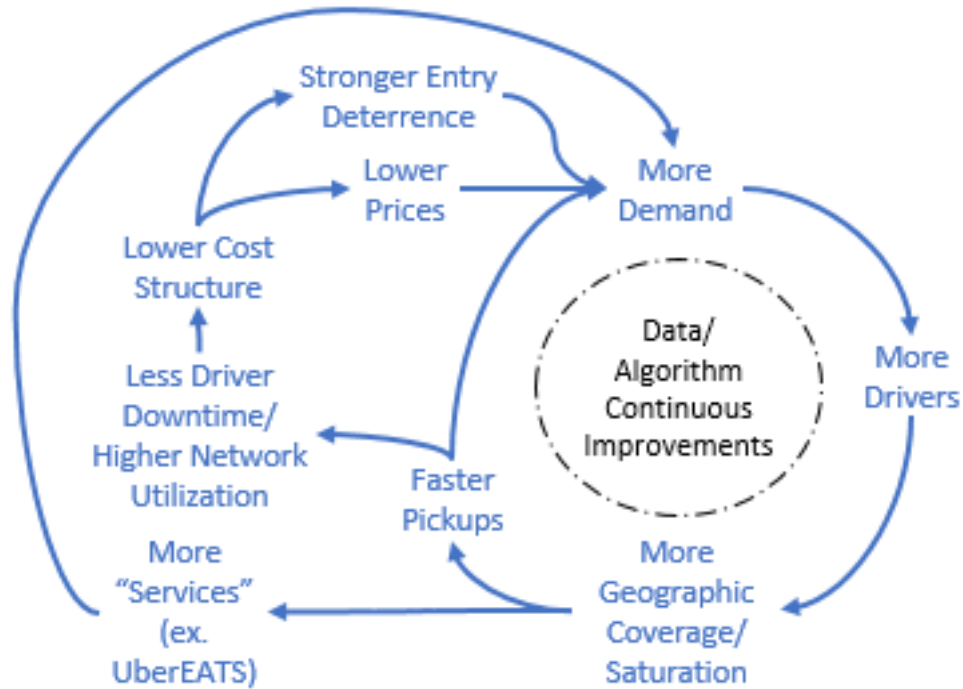
FIRM	YEAR	EMPLOYEES	MKT CAP
BMW	1916	116,000	\$53B
UBER	2009	7,000	\$60B
MARRIOT	1927	200,000	\$17B
AIRBNB	2008	5,000	\$21B
WALT DISNEY	1923	185,000	\$165B
FACEBOOK	2004	12,691	\$315B
KODAK	1888	145,000	\$30B (heyday)
INSTAGRAM	2010	13	\$1B (acquisition)



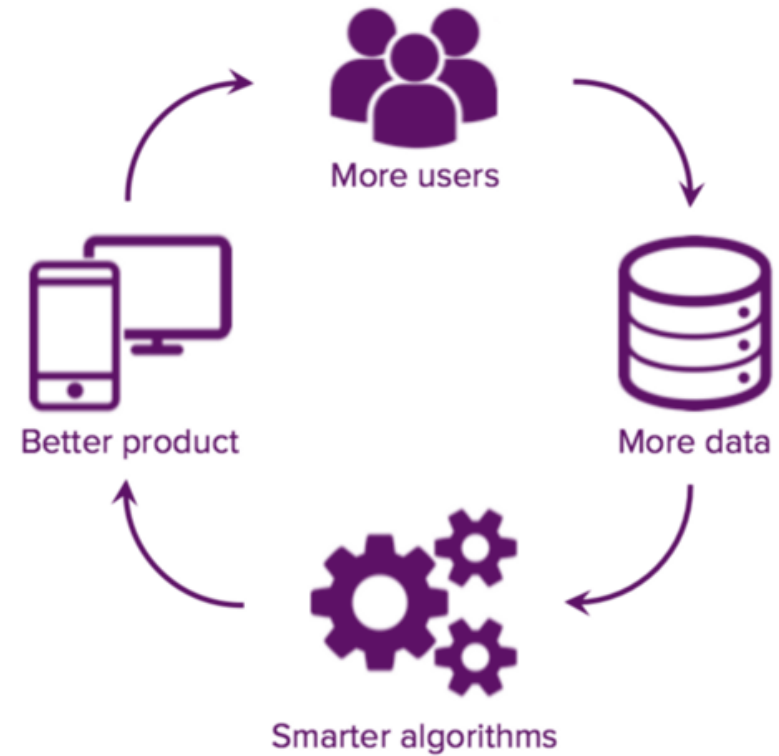
Efekt sieciowy



Uber: Platforma i efekt sieciowy

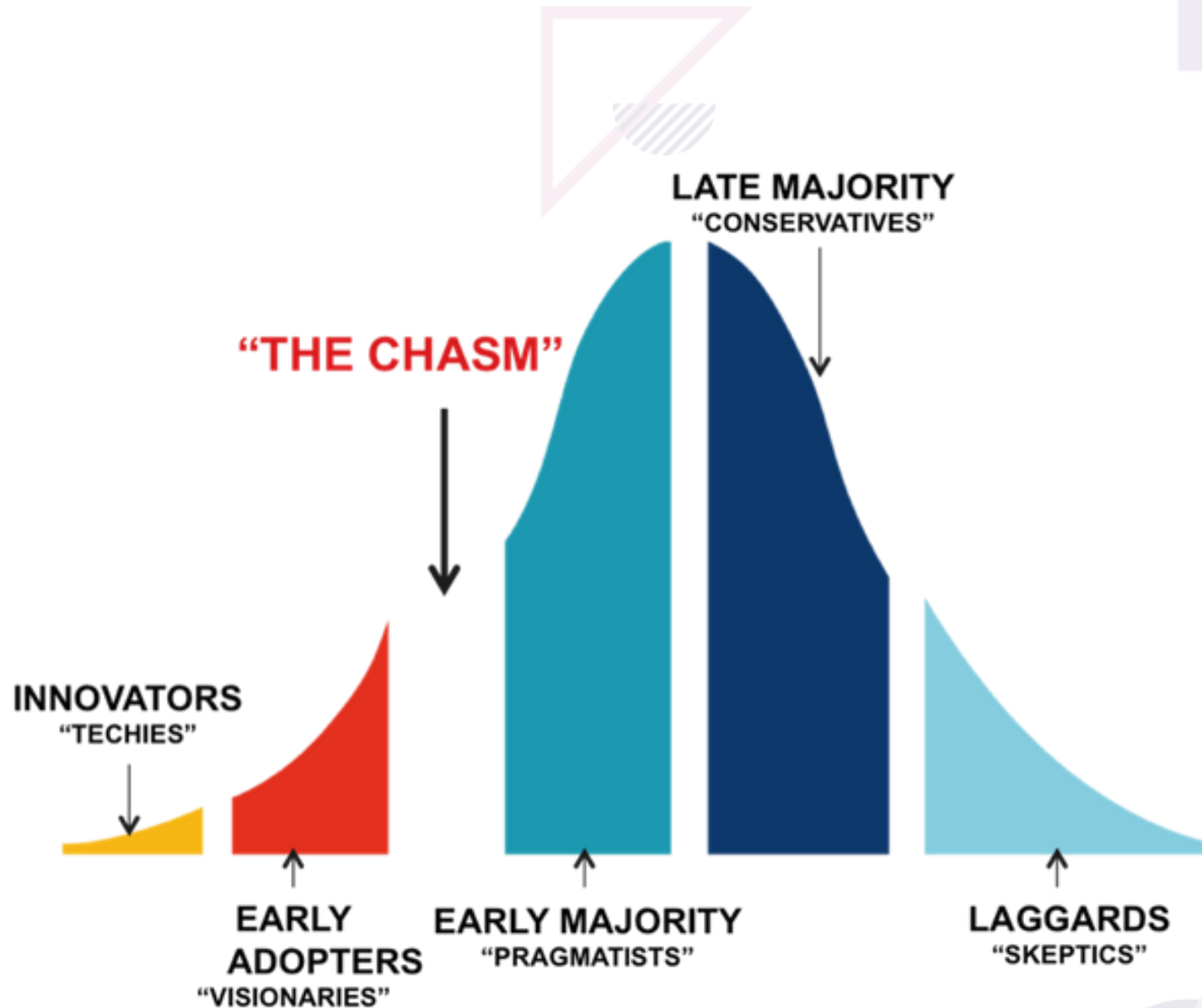


source: hackernoon.com

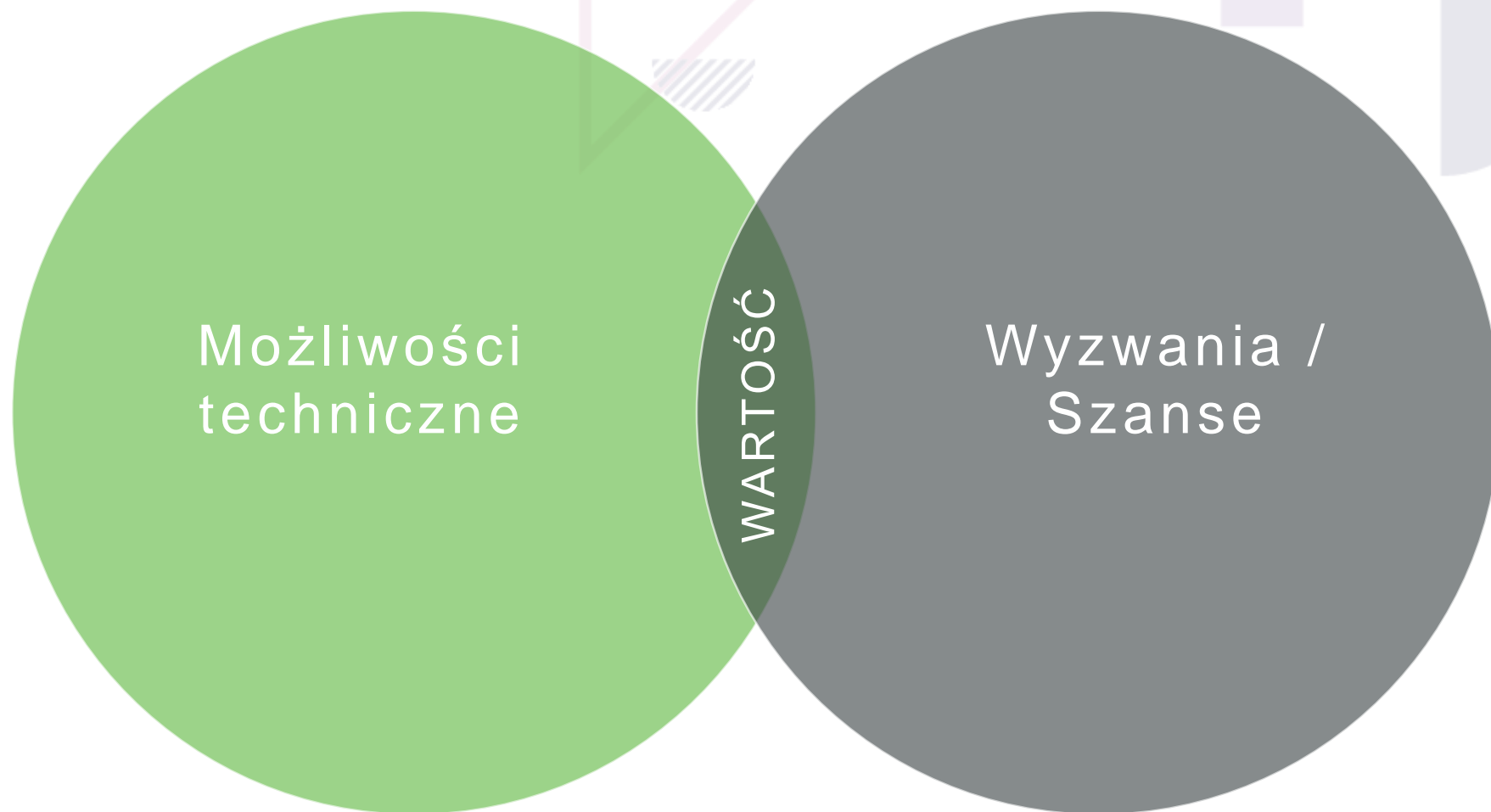


source: cbinsights.com

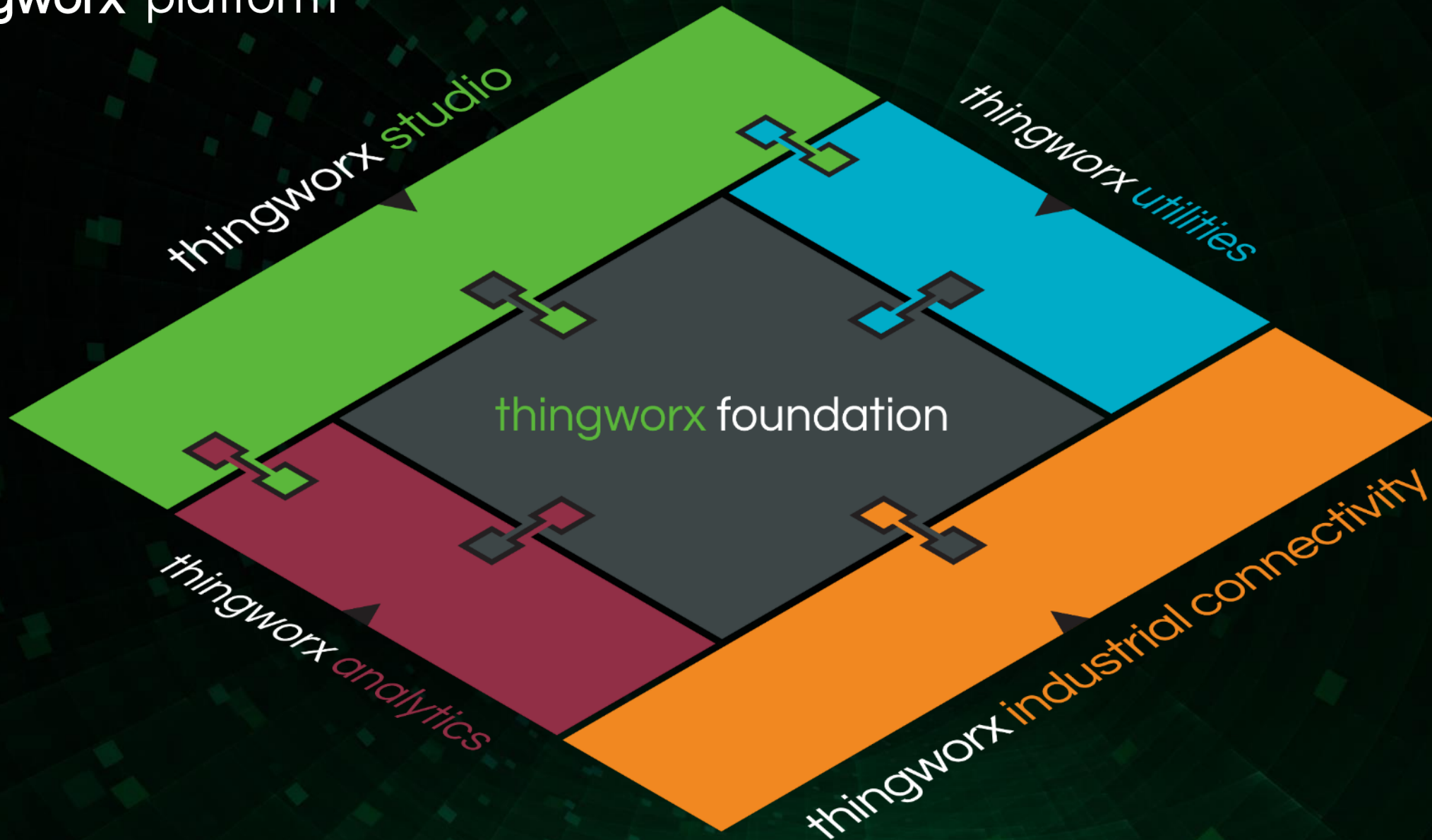
Przekroczyć przepaść - szybciej



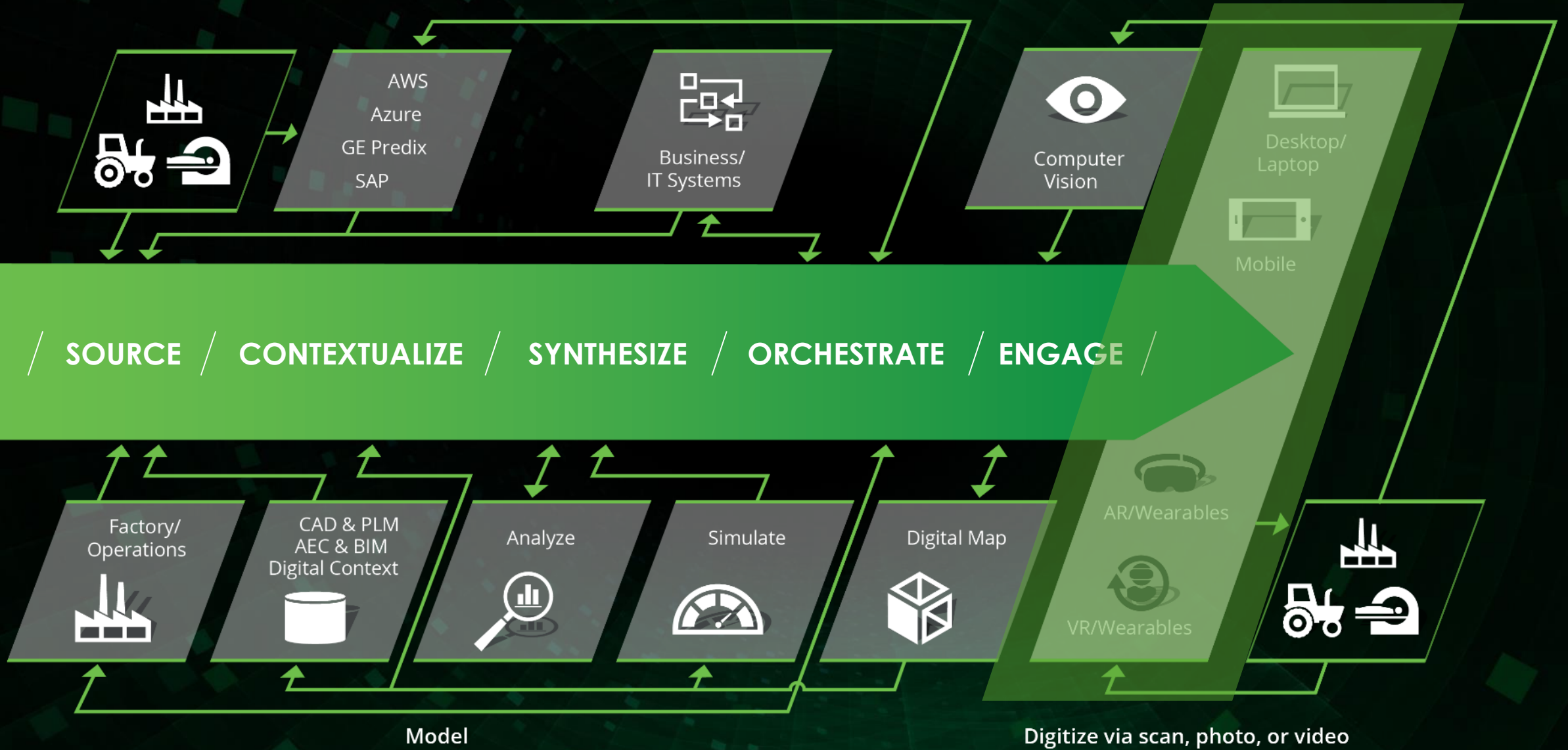
Jak robimy to w TTPSC



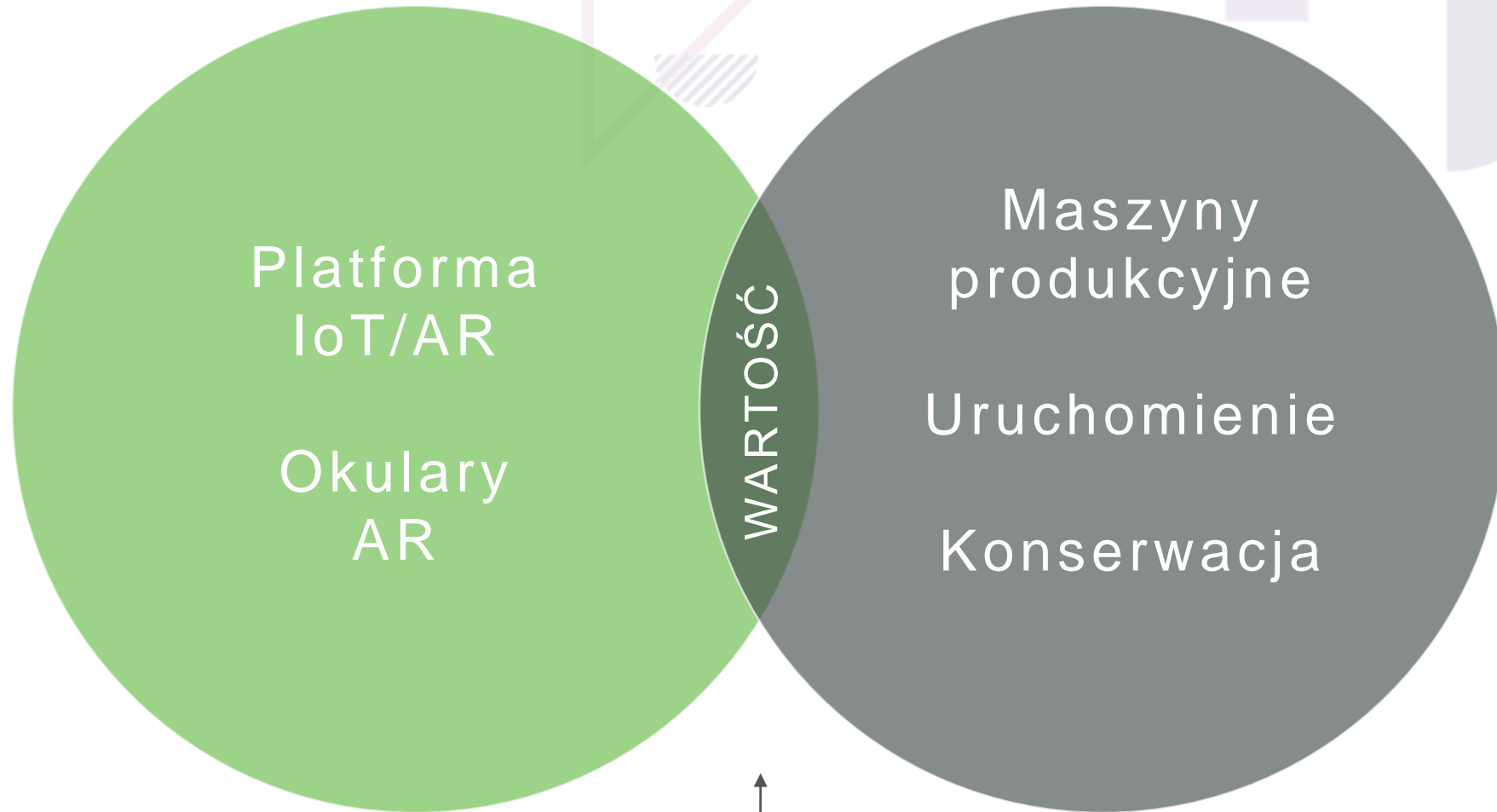
thingworx® platform



thingworx® platform

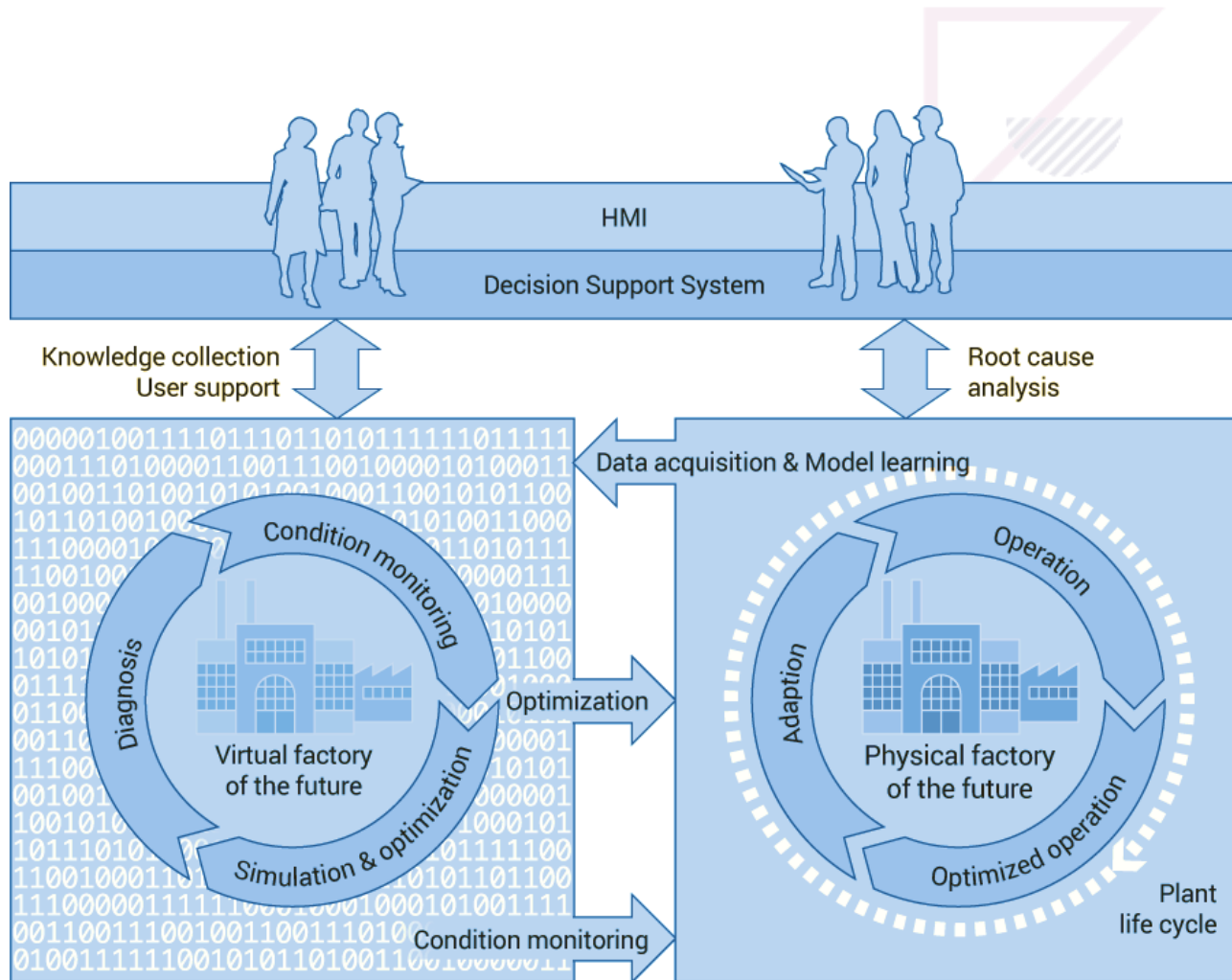


Projekt IMPROVE – gdzie IoT spotyka się z AR



Strategia AR dla różnicowania wsparcia posprzedażowego

Projekt IMPROVE – gdzie IoT spotyka się z AR



Systemy cyberfizyczne

Cyfrowy bliźniak fizycznej fabryki

Mechanizmy samouczące



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 678867.

Projekt IMPROVE – gdzie IoT spotyka się z AR

ASSISTED OCME

Cutting blade; S/N:1400300A01



KPI
panel



VIDEO
gallery



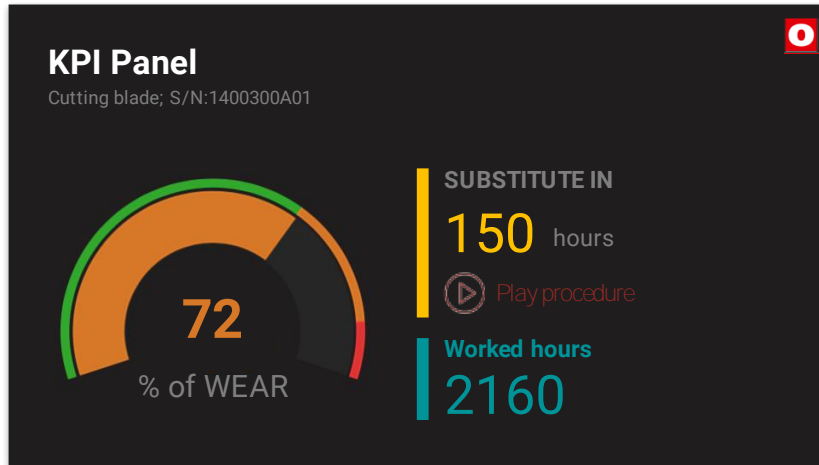
PLAY
procedure

KPI Panel

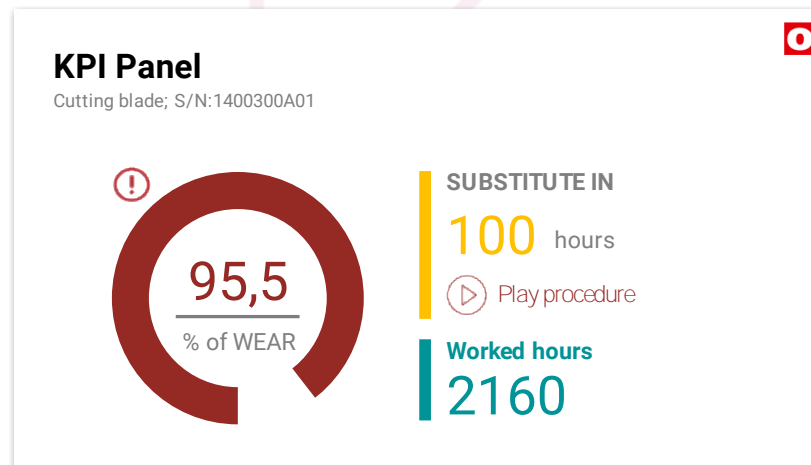
Cutting blade; S/N:1400300A01



Funkcjonalność



Wizualizacja danych



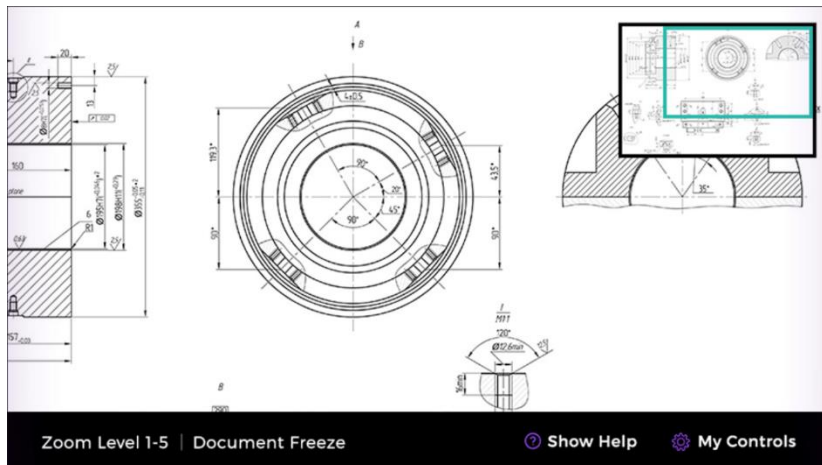
KPI procesu / maszyny

Step 1/3

Remove the 3 screws highlighted and loose the 4 screws in yellow

Listen Previous Next

Instrukcje, procedury BHP



Dokumentacja, filmy instruktażowe



Zdalna pomoc

FIELD SERVICE REPORT

NAME: Luke O'Connell DATE: 20 September

LOCATION: Site B, Grandville Road, Houston, TX [show map](#)

PROBLEM: Customer reported leaky valve.

RESOLUTION: Replaced O-ring on leaky valve...

STATUS: Closed Open In progress

ATTACH PHOTO SUBMIT REPORT

Wypełnianie formularzy



Demo

ar@ttpsc.pl

Create Project

Project Name

Assited Reality

AssistedRealityExperience

http://ar.tt.com.pl:2019



Project Type



Mobile



Eyewear



HMT

Initial View



AR



2D

Create

[Cancel](#)



Vega ocme

Unavailable



Switch Scene



Maintenance Video1



Maintenance Video2



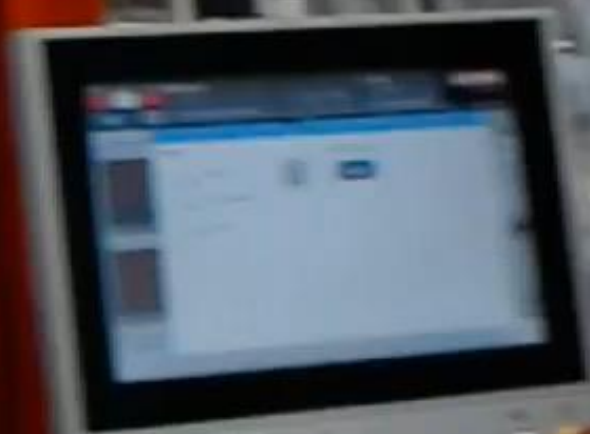
Maintenance Video3

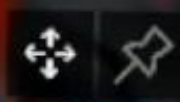


Drawings



Manuals





Next



STEP
8/21

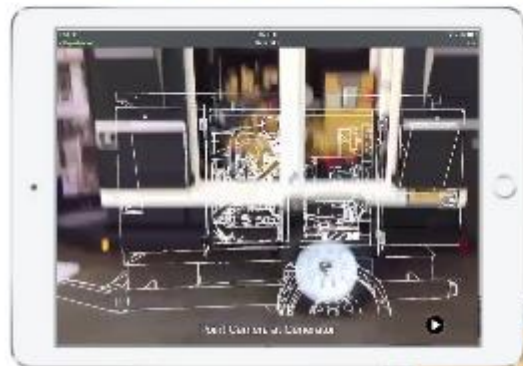
Remove Motor

thingworx® studio

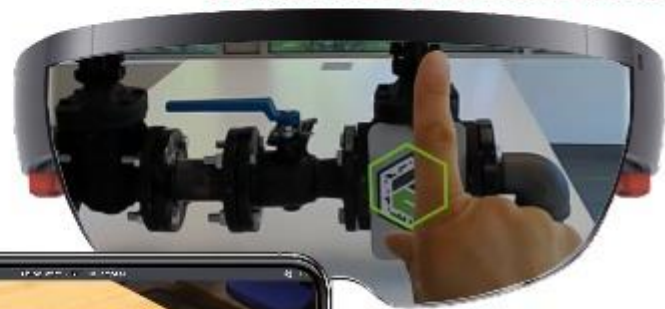
THINGWORX STUDIO – TOP AR USE CASES



Service Manual & Instructions



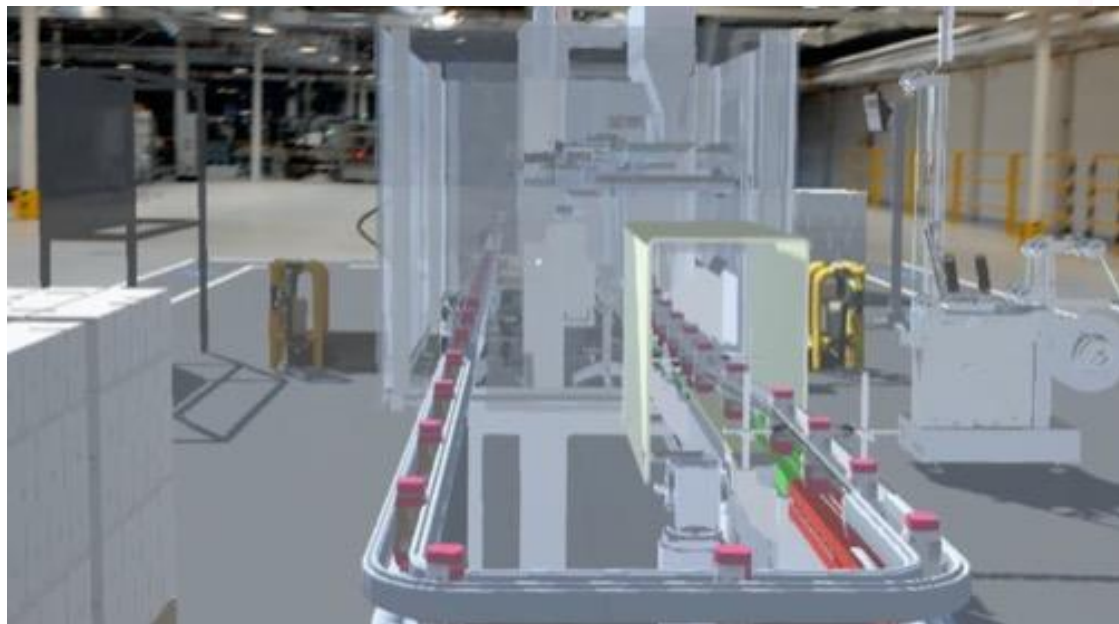
Operator & Assembly
Work Instructions



Virtual Product
Demonstration



NASZE REFERENCJE AR – L'ORÉAL POLAND



L'ORÉAL



- szybkie zeskanowanie i opomiarowanie hali
- wyznaczenia miejsc pracy
- zaaranżowania przestrzeni maszynami i stanowiskami pracy
- wizualizacji przyszłej linii i procesu produkcji





TRANSITION
TECHNOLOGIES

L'ORÉAL

A semi-transparent AR interface is overlaid on a factory floor scene. The interface includes a search bar, a play button, and a share icon. A large document with text is visible on the right side of the interface. The background shows a factory environment with workers and machinery.

Augmented Reality Plant Layout Design



TRANSITION
TECHNOLOGIES

L'ORÉAL



Augmented Reality Plant Layout Design



TRANSITION
TECHNOLOGIES

L'ORÉAL

Augmented Reality Plant Layout Design



Dziękuję

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