



PUZZLE DATA Process Mining Summit 2019

디지털 트랜스포메이션과
프로세스 마이닝

2019년 11월 21일 목요일

삼성동 코엑스 컨퍼런스룸(남) 402호



PUZZLE DATA
Process Mining
Summit 2019

The 1st Process Mining Summit :

WELCOME

Process Mining in Korea

2013

UNIST / POSTECH 송민석 교수

IEEE Task Force

한국의 프로세스 마이닝 적용 대표 우수 사례

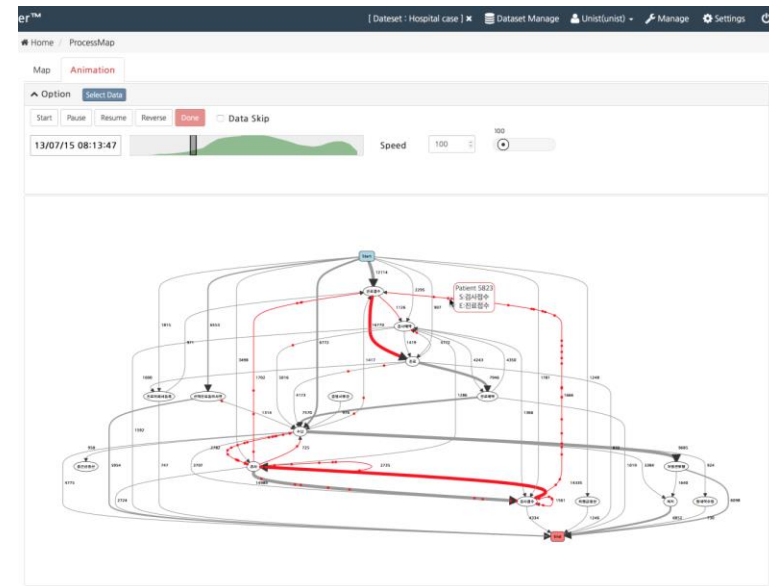


2015



Puzzle Data

Process Analyzer



Process Mining in Korea

2017



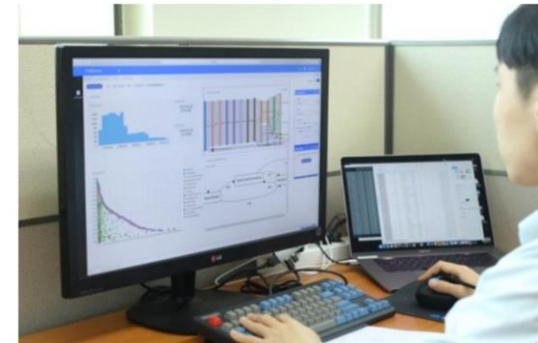
ProDiscovery

퍼즐데이터, 프로세스 마이닝 솔루션 '프로디스커버리 2.0' 론칭 | 기술/IT

2017.06.20. 09:32

http://blog.naver.com/newswire/221033213246

반려하기 | 전용뷰어 보기



2018



Market Guide for Process Mining

Published: 3 April 2018 ID: G00353970

Analyst(s): Marc Kerremans

Processes and interactions are basics in the exact transformation, new AI capabilities and new forms of RPA. Process mining helps EA and TI leaders boost effectiveness and value of these initiatives to attain outcomes.

Key Findings

- Traditional discovery and modeling of your operations and related time-consuming process that is vulnerable to human intervention and lack of objective validation techniques.
- Formal standard operating procedures, policies, work instructions, and enterprise applications are often "shadowed" by informal behaviors and issues and compromising the expected value of these enterprise applications.
- The business value of process automation initiatives is often underestimated as actual operational data is available only after the automation, and on estimated operational data and an initiative with limited success.
- Task-level automation, such as RPA and the use of IoT capabilities, is a very short term. But implementing these initiatives without understanding the operational context sometimes makes these initiatives lose their value.

Representative Vendors

Market Introduction

Vendor Profiles

- Celonis
- Cognitive Technology
- Fluxicon
- Icaro Tech
- Kofax
- Lana Labs
- Minit
- Process Analytics Factory
- Process Mining Group
- ProcessGold
- Puzzle Data
- QPR Software
- Signavio
- Software AG
- StereoLOGIC



Process Analytics Market by Process Mining Type (Process Discovery, Process Conformance & Process Enhancement), Deployment Type, Organization Size, Application (Business Process, IT Process, & Customer Interaction) & Region - Global Forecast to 2023

ID: 4576970 | Report | June 2018 | Region: Global | Markets and Markets

DESCRIPTION | TABLE OF CONTENTS | SUMMARY | COMPANIES MENTIONED | FORMATS / FAQ

PRINTER FRIENDLY >
SEND TO A FRIEND >

아시아 유일한 벤더

Process Mining in Korea

불법 게임 사용자 행동 패턴



제조공정 PI 효율화



금융상품 유지/이탈 패턴



웹페이지 프로세스 개선



환자 동선 분석 및 개선



The 1st Process Mining Summit

The 1st Process Mining Summit :

디지털 트랜스포메이션과 프로세스 마이닝

퍼즐데이터

김 영 일

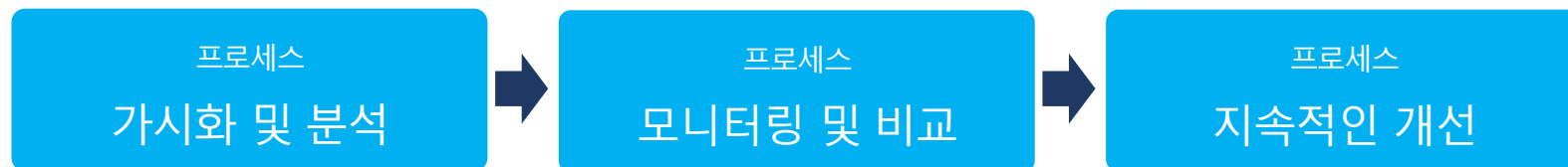
 PUZZLE DATA
Process Mining
Summit 2019

Desire Path



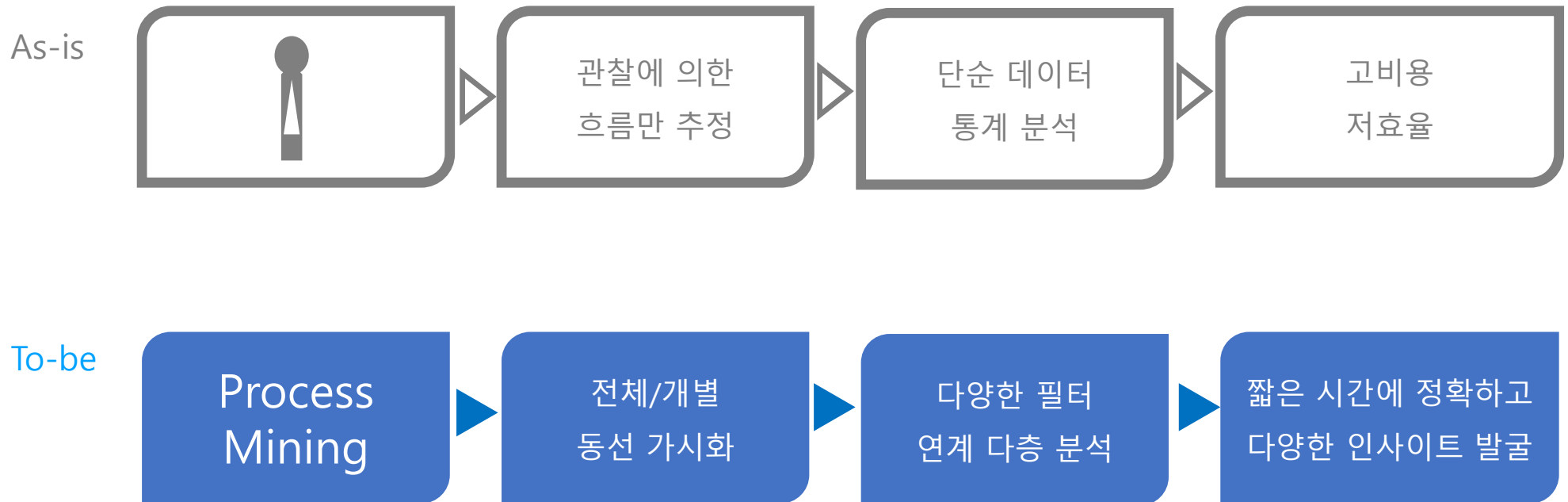
Process Mining

시스템 이벤트 로그 데이터를 기반으로 프로세스 맵을 자동으로 생성/가시화/분석



Smart Process Innovation with Process Mining

전통적인 PI에서 디지털 프로세스 마이닝을 기반으로 한 SMART PI로 전환



Smart Process Innovation with Process Mining



대검찰청 형사부 업무 부하 분석

20일



Process Mining



1일 !

[업무 분석 컨설턴트 투입]

표본 검사실 선정



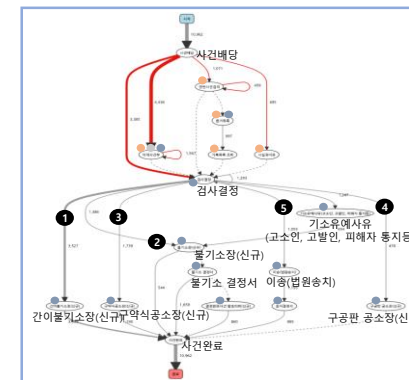
컨설턴트 상주
관찰 / 업무 분석 / 보고서



[데이터 기반 프로세스

마이닝]
형사정보시스템 접속 로그
100만건

화면조회로그 950,000 + 문서관리로그 60,000



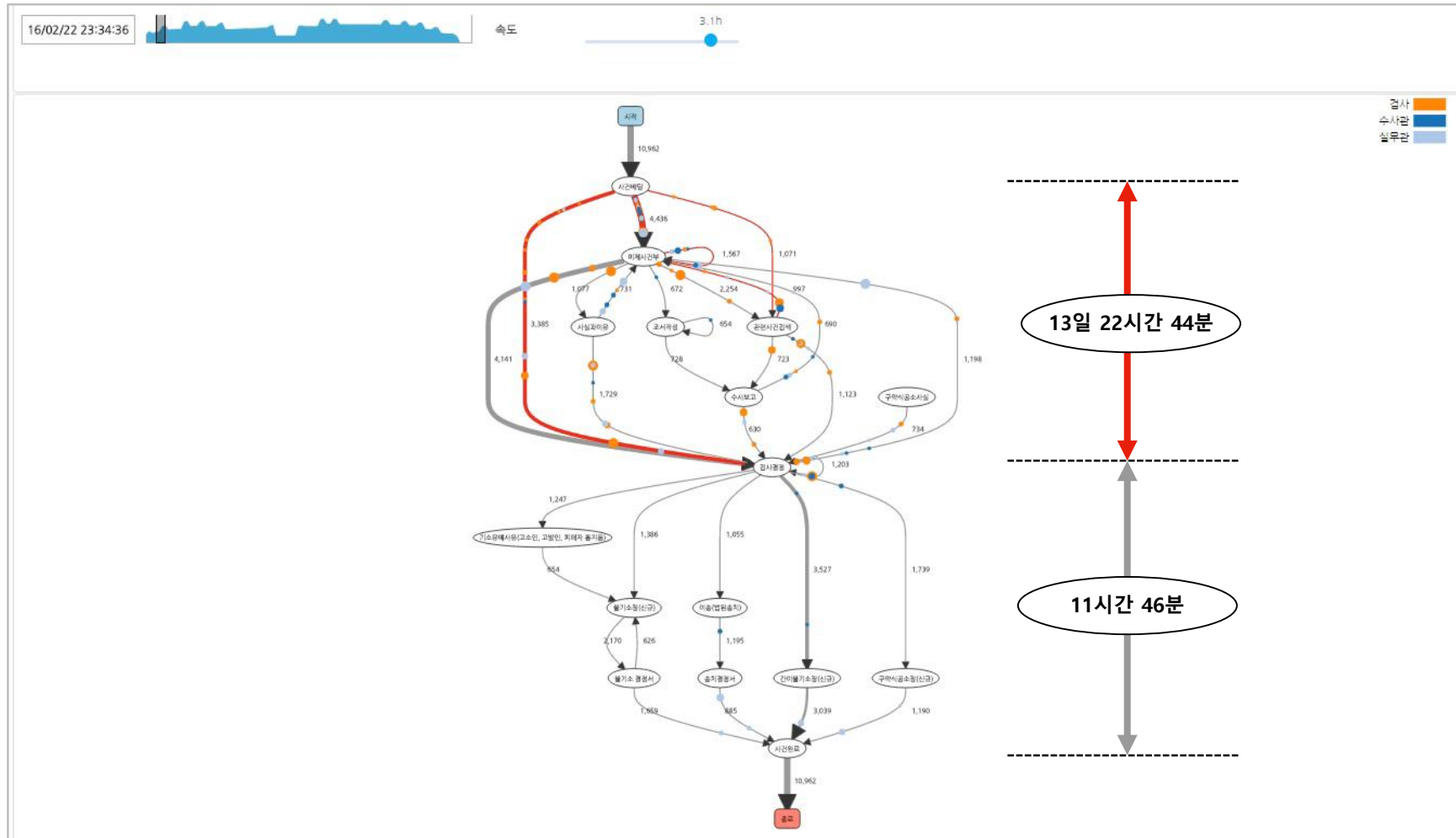
Smart Process Innovation with Process Mining



검찰

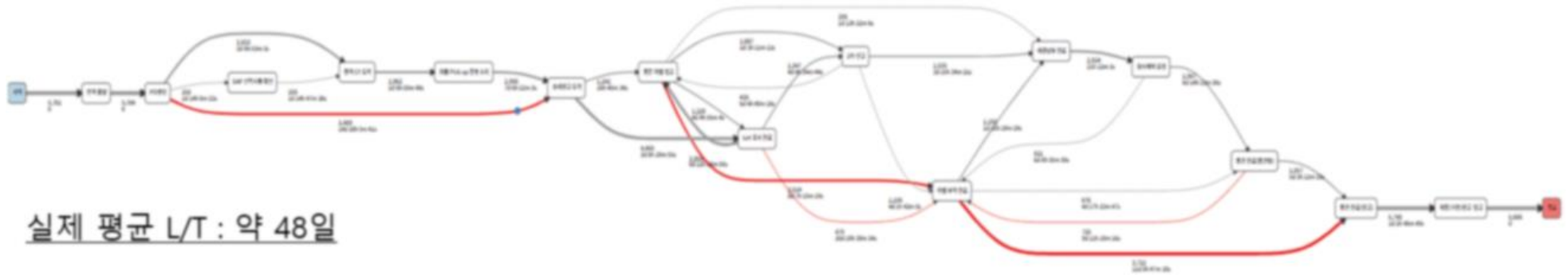
PROSECUTION SERVICE

대검찰청 형사부 업무 부하 분석

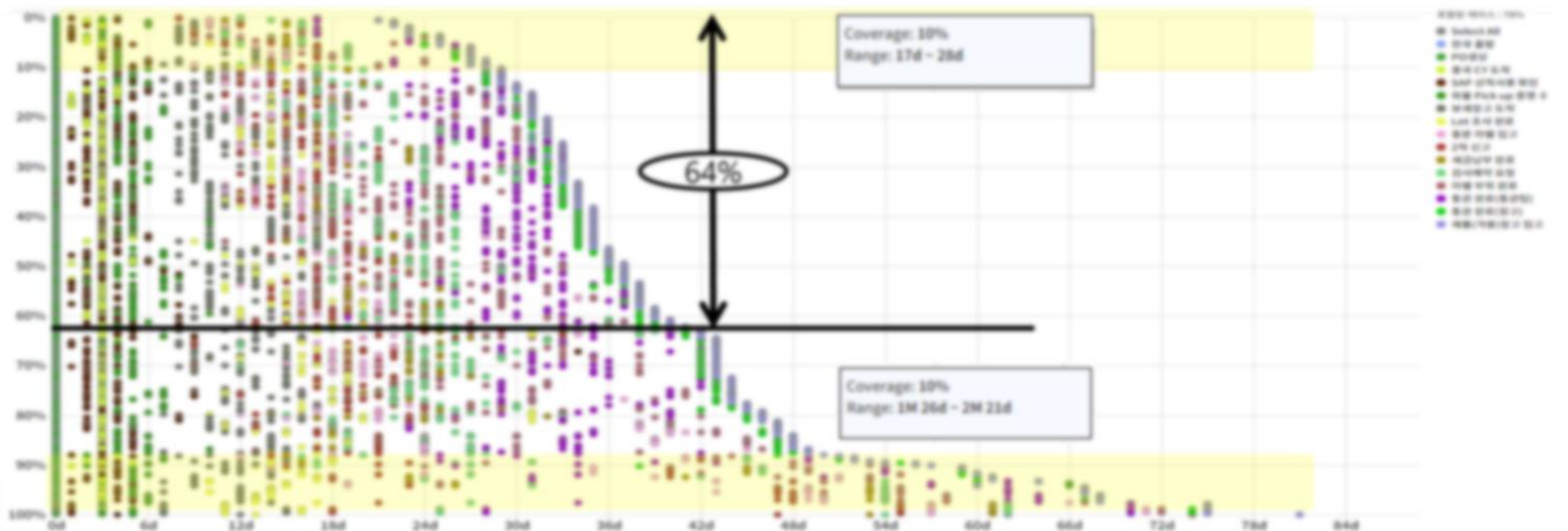


Smart Process Innovation with Process Mining

ERP 수출입/통관 프로세스 분석 및 개선



실제 평균 L/T : 약 48일



Smart Process Innovation with Process Mining

ERP 수출입/통관 프로세스 분석 및 개선

L/T 기준 상위 10%의 Case 패턴 (평균 L/T: 약 28일)

- 표준 프로세스를 따르는 케이스의 평균 L/T: 약 21일



L/T 기준 하위 10%의 Case 패턴 (평균 L/T: 약 56일)

- 표준 프로세스를 따르는 케이스가 존재하지 않음



Smart Process Innovation with Process Mining

ERP 수출입/통관 프로세스 분석 및 개선

> 가장 빠른 프로세스(평균 L/T : 약 26일)



> 표준 프로세스(평균 L/T : 약 34일)



> 가장 느린 프로세스(평균 L/T : 약 81일)



Digital Transformation 진행중

온라인 디지털 중심으로 빠르게 재편 중



이마트 창사 이래 첫 적자 났다...2분기 300억원 영업 손실

중앙일보 PICK | 2019.08.09. | 네이버뉴스 | [📄](#)

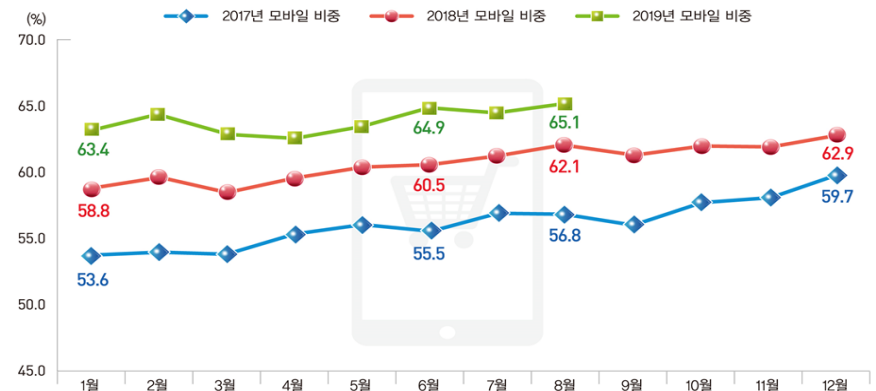
대형마트 업계 1위인 이마트 적자는 어느 정도 예고돼 있었다. 그러나 이날 공시된 적자 규모는 시장 예상치였던 47억~105억원 수준을 훨씬 웃돈다. 이마트는 하반기에 사업 재편으로 반전을 꾀한다는 방침이다....

- 이마트, 2분기 사상 첫 적자전환...영... 조선비즈 PICK | 2019.08.09. | 네이버뉴스
- 위기의 오프라인...이마트, 결국 첫 ... 매일경제 PICK | 2019.08.09. | 네이버뉴스
- 이마트, 사상 첫 적자 기록..수익성 ... 파이낸셜뉴스 PICK | 2019.08.09. | 네이버뉴스
- 온라인 태풍 속 이마트 창사 후 첫 적... 아이뉴스24 PICK | 2019.08.09. | 네이버뉴스

< 소매판매액 중 온라인쇼핑 거래액 비중 >

(경상금액, 억원, %)
1) 「여행 및 교통서비스, 문화 및 레저서비스, e쿠폰서비스, 음식서비스, 기타서비스 거래액」 제외

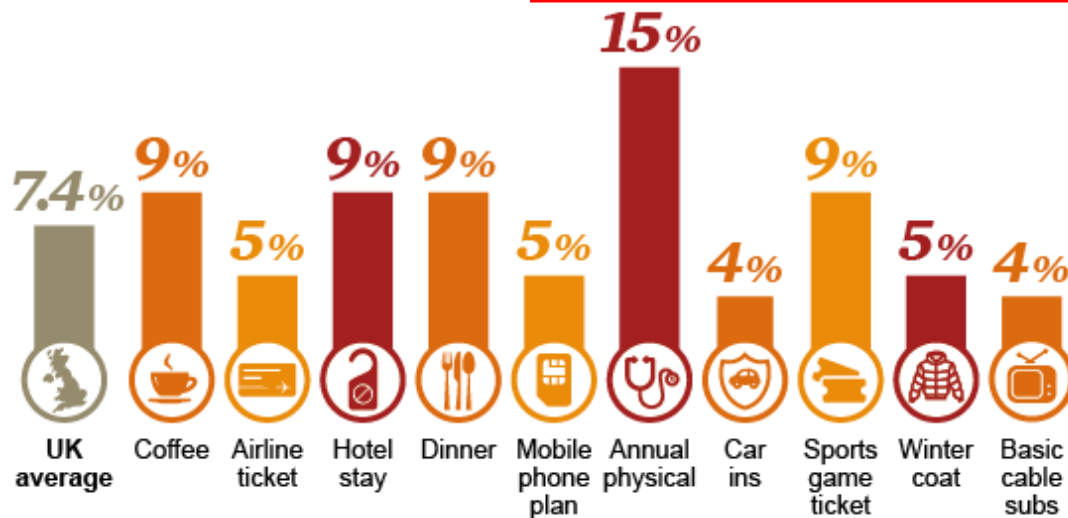
구 분	2018년		2019년		
	연 간	8월	6월	7월 ^P	8월 ^P
◦소매판매액(A)	4,649,923	377,944	384,212	384,037	387,784
◦온라인쇼핑 거래액	1,137,297	92,716	105,570	111,774	112,535
- 온라인쇼핑 상품 거래액(B) ¹⁾	873,631	68,181	78,462	82,267	81,546
온라인쇼핑 비중(B/A)	18.8	18.0	20.4	21.4	21.0



Digital Transformation 진행중

점점 중요해 지는 CX (Customer Experience)

People will spend more for **great consumer experience**



Additional amount consumers said they would pay

Source: PwC Future of Customer Experience Survey 2017/18

3 things consumers would pay more for



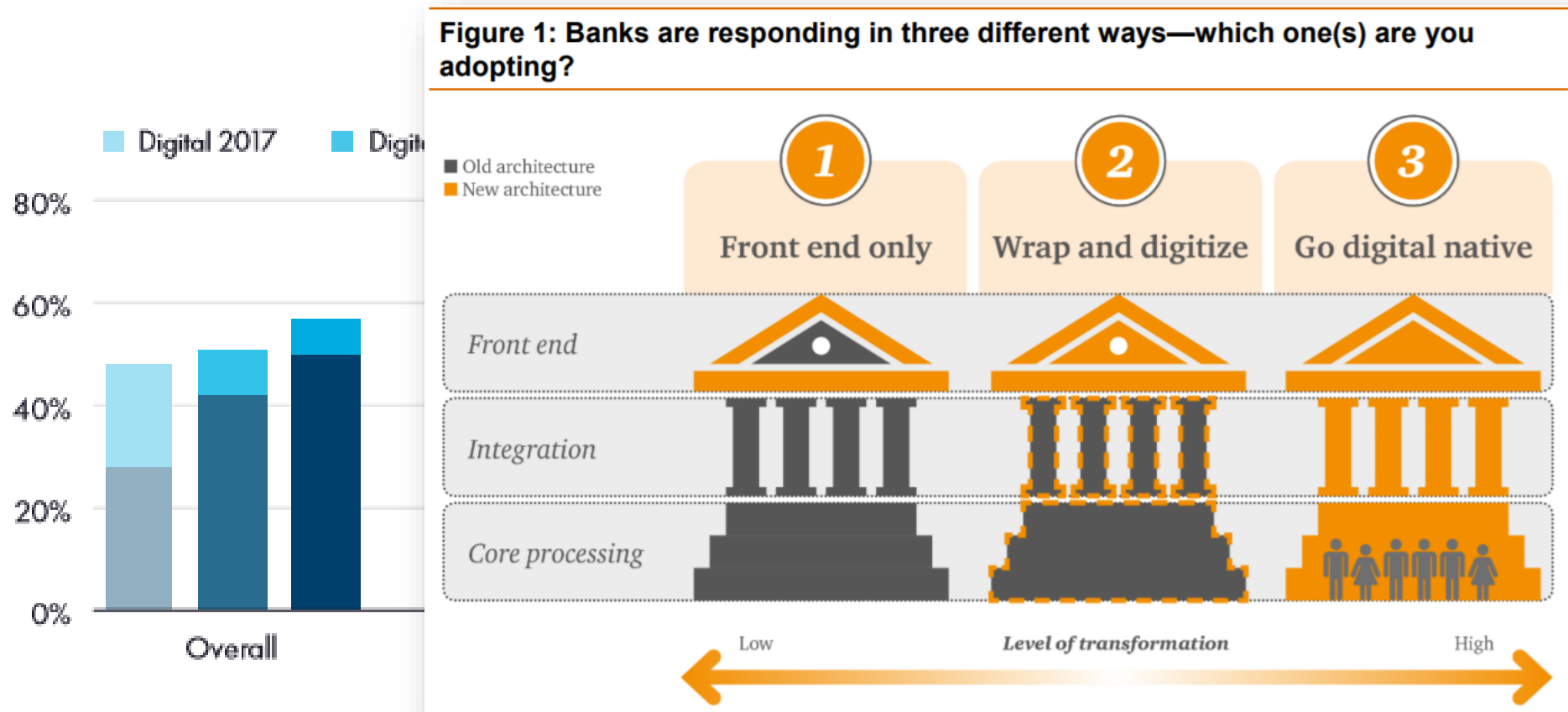
Components of consumer experience

Consumer experience matters



Digital Transformation 진행중

Go Digital Native – 거의 모든 산업에서 진행중인 디지털화



Source : [2019 State of Digital Sales in Banking Report](#)

Sources : <https://blog.pwc.lu/3-models-banks-start-digital-transformation/>

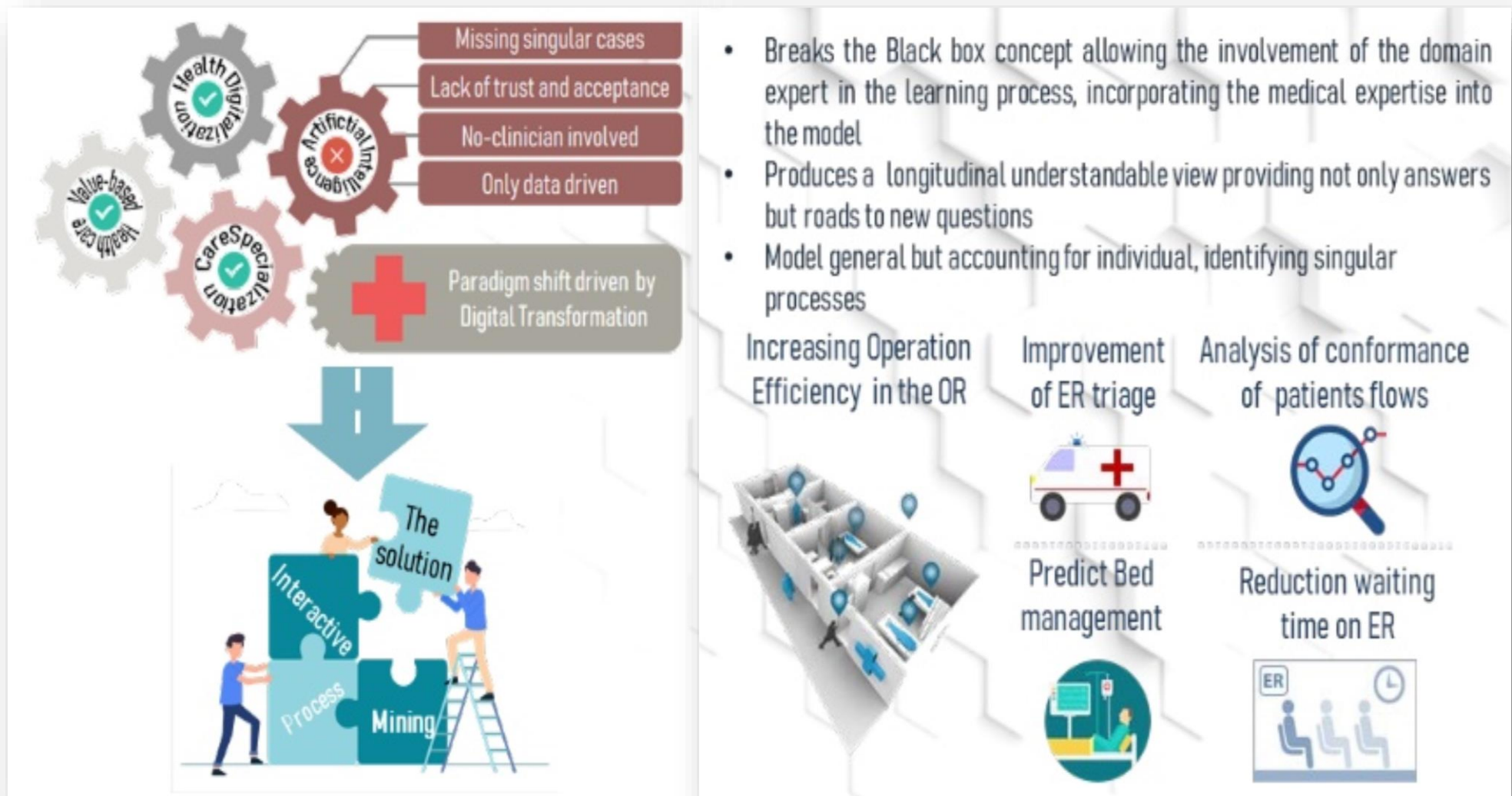
Digital Transformation 진행중

데이터의 연결 → 업무의 연결 PROCESS → 연결된 Process Innovation



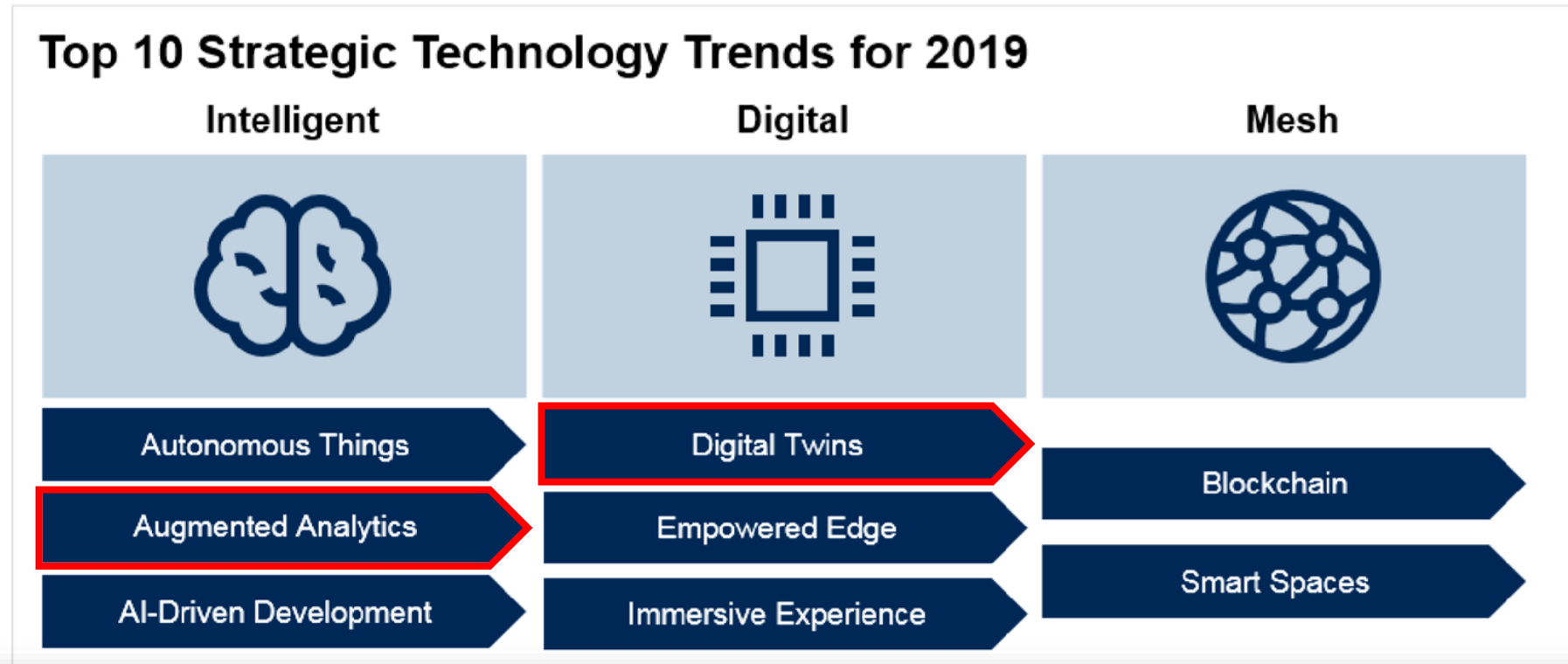
Digital Transformation 진행중

Healthcare Digitalization Transformation Solution : Interactive Process Mining



Digital Transformation & Process Mining

Gartner 10대 전략기술 – Digital Transformation 관련 Process Mining 5번 언급



Process mining. Process mining is closely associated with augmented analytics. It aims to discover, monitor and improve real processes (that is, not assumed processes) by extracting knowledge from event logs readily available in information systems. Process mining can provide the data connection part of a DTO.

Source: Gartner (October 2018)

Digital Transformation & Process Mining

DTO : Digital Twin of an Organization

A digital twin of an organization (DTO) visualizes the interdependence between functions, processes and key performance indicators to drive value.

The graphical model of the DTO is a way to connect all events, data and information about the processes, as well as the behavior of people acting as resources within the DTO.

DTO Business Opportunities

- Digital business transformation
- Extending the IoT digital-twin concept
- **Process mining**

any organization that relies
to understand its state,
operations and add value.

Gartner.

Digital Transformation & Process Mining

Recommendations

- ✓ Use a DTO to guide business leaders in managing their digital business transformation initiatives by connecting the organization's objectives with the organization's operations and providing the relevant monitoring in order to make smarter decisions.
- ✓ Start with a limited market/channel/process organization such as a department, a business unit and consider the operations as a fundamental constituent.
- ✓ Process mining provides a first step to discover optimization opportunities in a very fast manner and at the same time prepares for the next level of maturity expanding further into the organization.

Smart CX (Customer Experience) with Process Mining

온라인 사용자 프로세스 분석 및 개선

[고 성과 사용자 프로세스 맵]



[저 성과 사용자 프로세스 맵]



Smart CX (Customer Experience) with Process Mining

The screenshot displays the ProDiscovery software interface. The top navigation bar includes the 'ProDiscovery' logo, a search bar, and a user profile icon for '강동수'. The left sidebar contains a 'Dataset' section with a 'CREATE NEW' button and a list of folders: 'My Folder', 'E-commerce Web log', 'RPA Sample', 'Repair 데이터', '의료프로세스 데이터', '일상생활데이터', and '제조데이터'. Below the folders are options for '즐거찾기' and '이벤트 원본'. The main content area shows the breadcrumb 'Dataset > My Folder > E-commerce Web log' and the title 'E-commerce Web log'. A '+ 새 데이터집합' button is visible. Below the title, there are options for '자세히보기', '간략히보기', and '생성일'. A table displays the following data:

고객 행동 패턴 분석		☆	✎	ⓘ	⌵	⌵
Start	2018-02-28	Cases	10,871			
End	2018-03-10	Activities	21			
Events	161,459	Resources	6			

The right side of the interface is currently empty, displaying a message: '데이터집합에 새로운 Dashboard를 생성해 주세요.'



Paper Map

Restricted information

No update



Digital Map : The basic of DX

Zoom in - zoom out

Various views (hotels, fuel stations, restraints, ...)

Current location

Dynamic content

Traffic information

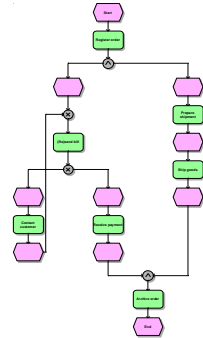
Navigation & Prediction ... AI

Process Mining :

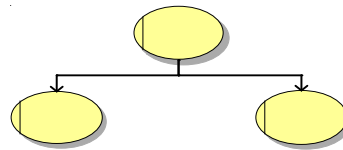
The Basic of DX (Digital Transformation)

Digital Transformation & Process Mining

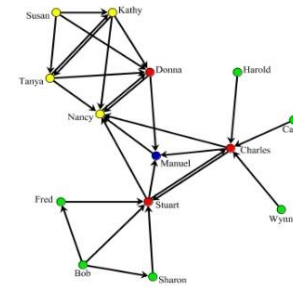
Process Model



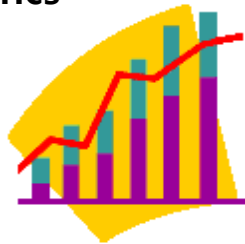
Organizational Model



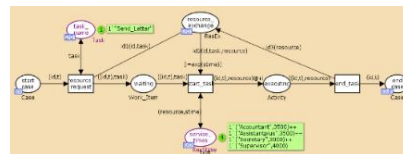
Social Networks Analysis



프로세스 성과분석
Performance Metrics



Simulation



Audit
Compliance



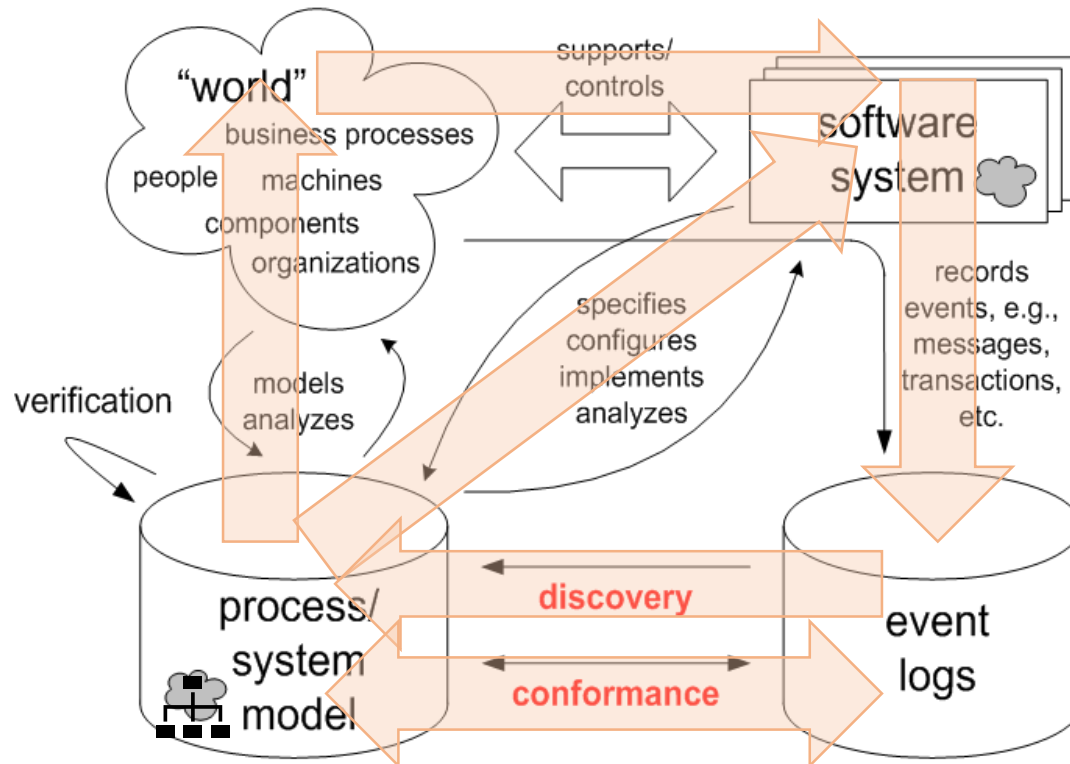
RPA
(Robotic Process Automation)



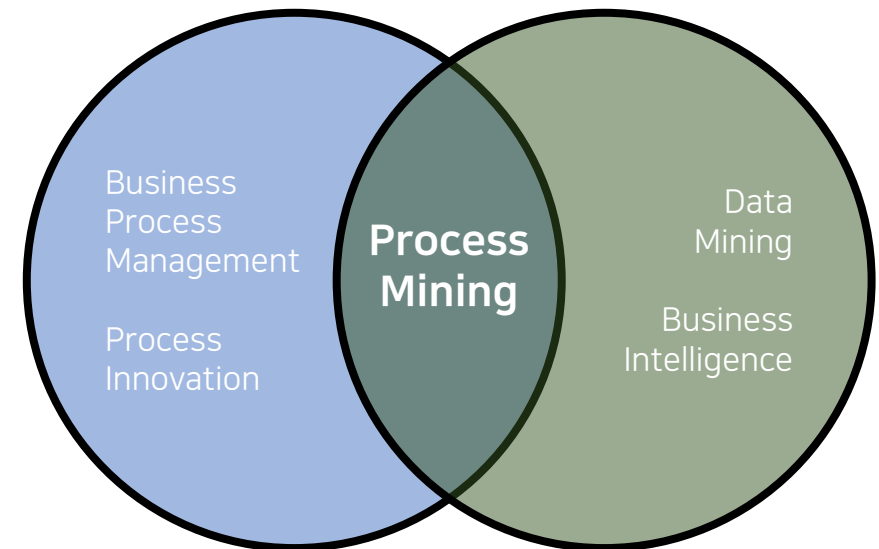
ProDiscovery
프로세스 마이닝

Digital Transformation 시작은 프로세스 마이닝 !!

Providing **Process Insight** from Enterprise Data
Process Discovery, Monitoring & Improvement



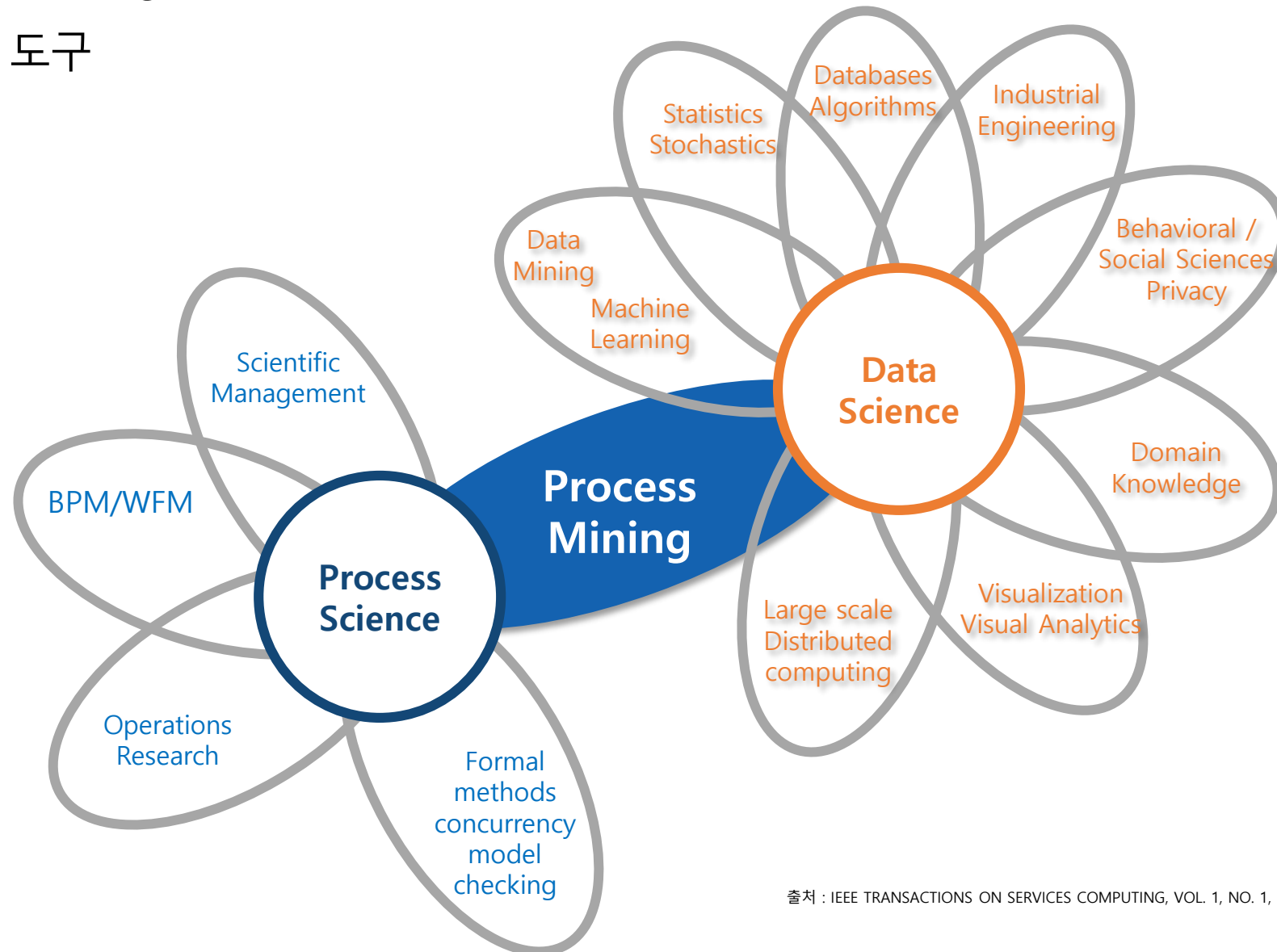
[Source : Will van der Aalst, Professor at RWTH, Germany]



Digital Transformation 시작은 프로세스 마이닝 !!

4차 산업혁명 / Digital Transformation

필수 분석 도구



출처 : IEEE TRANSACTIONS ON SERVICES COMPUTING, VOL. 1, NO. 1, SEPTEMBER 2015

Process Mining Market

Digital Transformation 연계 5년내 폭발적 성장

- ✓ 전통적 PI 시장과 동반성장
- ✓ 인접시장 RPA, CX 확장

Process Mining S/W 시장 전망

CAGR **50.3%**

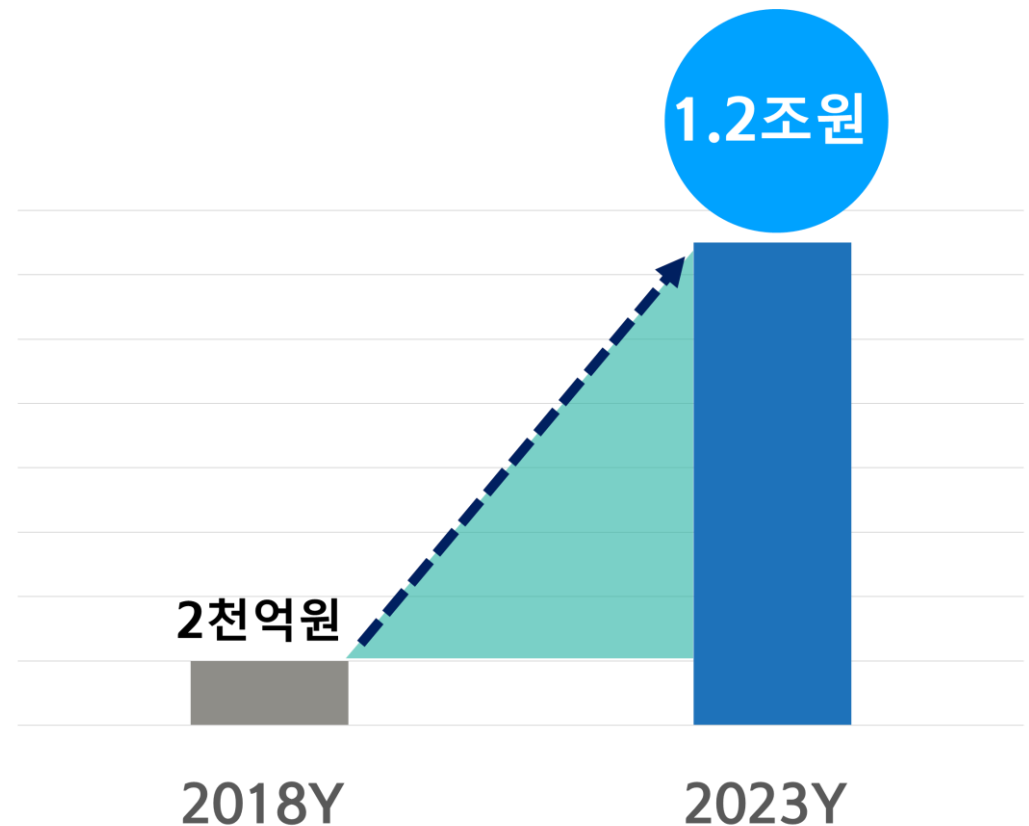
Market Guide for Process Mining

Published 17 June 2019 - ID G00387812 - 52 min read

Initiatives: [Technology Innovation](#)



Marc Kerremans
Sr Director Analyst



Smart PI

Smart CX

Process Mining

SUCCESSFUL

starts with

Smart PI

Smart CX

 PUZZLE DATA ProDiscovery

ProDiscovery On-Premise

ProDiscovery Cloud Service



감사합니다

디지털 트랜스포메이션과 프로세스 마이닝



 PUZZLE DATA
Process Mining
Summit 2019

퍼즐데이터 '프로디스커버리' 문의
info@puzzledata.com, 02-2023-8431