



# SAP Machine Learning For The Intelligent Enterprise

Marcus Pannier and Nicolas Plocharski, SAP  
Moscow 31<sup>st</sup> of October, 2018

PUBLIC

# Don't be afraid of SAP Machine Learning

TIME WELL SPENT™

by Tom Fishburne



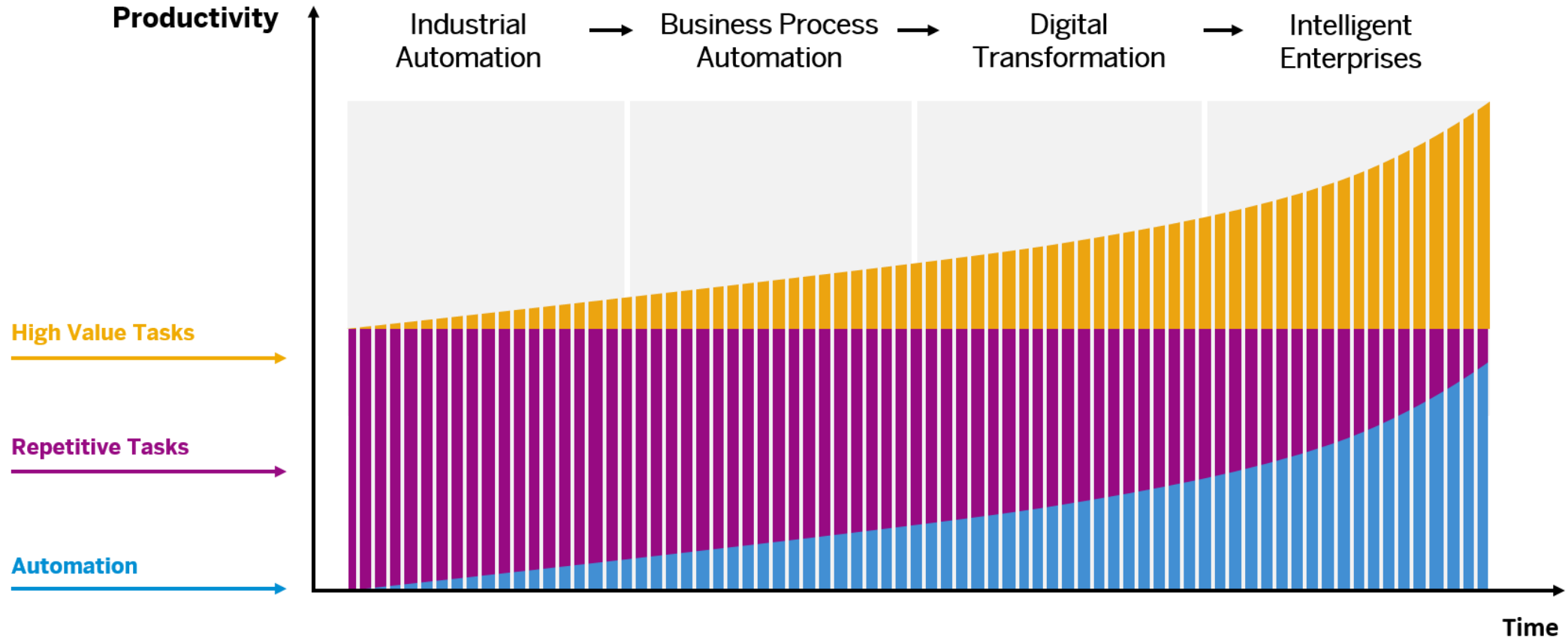
KRONOS

Workforce Innovation That Works™

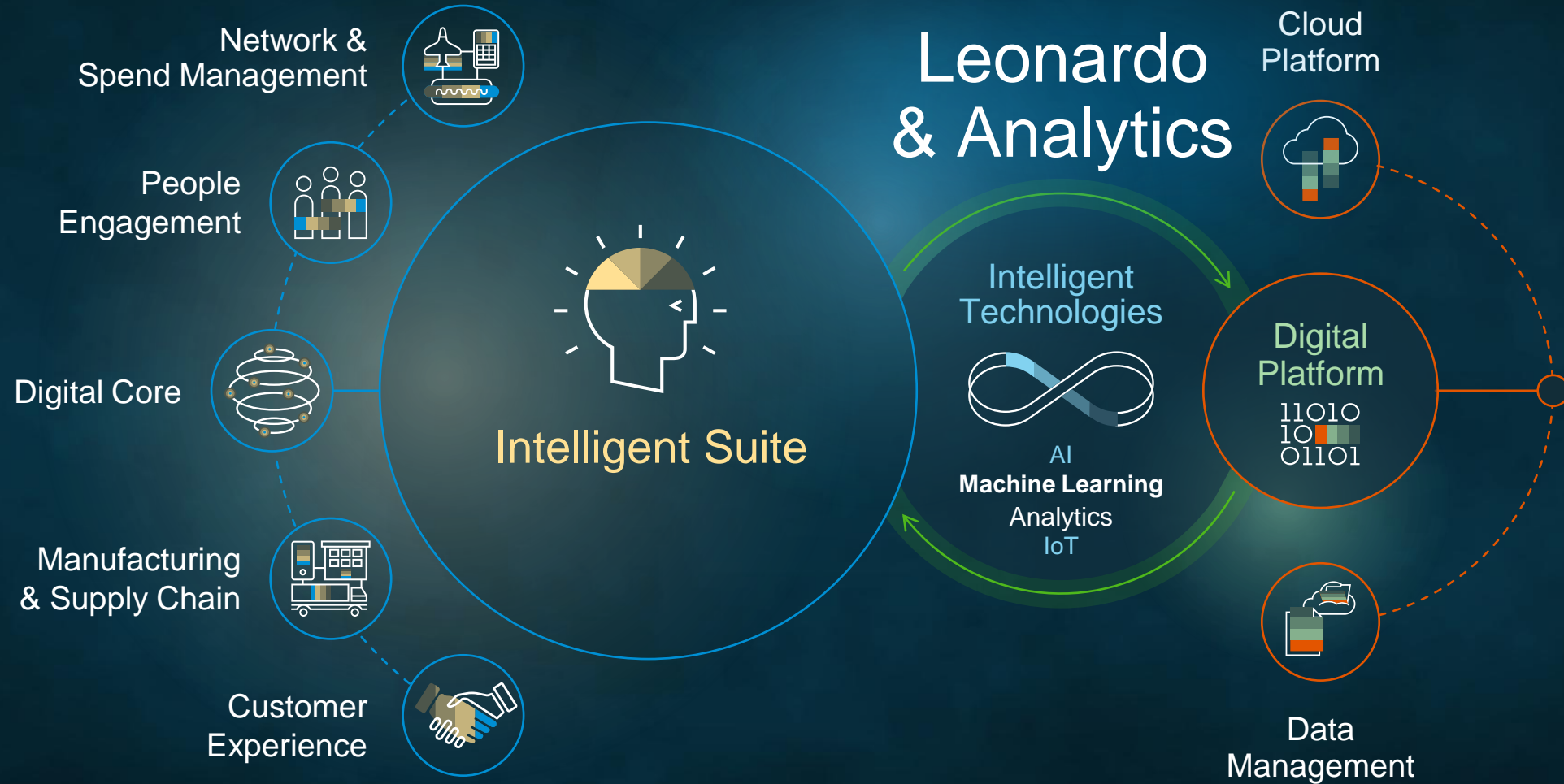
© 2012

KRONOS.COM/TIMEWELLSPENT

# The Digital Era is Evolving into The Intelligence Era



# The Intelligent Enterprise



# AI is a huge part of SAP's The Intelligent Enterprise strategy

## Q: Can you tell me more about SAP's bet on AI?

.....

We have a very ambitious goal, which is to automate 50 percent of manual tasks you have in the ERP system in the next three years. That means huge savings for companies. And that would not be something aside of the software, but it will be integrated in the core system.



Franck Cohen – May 2018

Source: <https://news.sap.com/2018/05/interview-franck-cohen-sap-bets-artificial-intelligence-intelligent-enterprise/>

**By 2020:**

**50%**

Of analytical queries will be done through natural search

**200%**

Growth in user adoption with augmented analytics

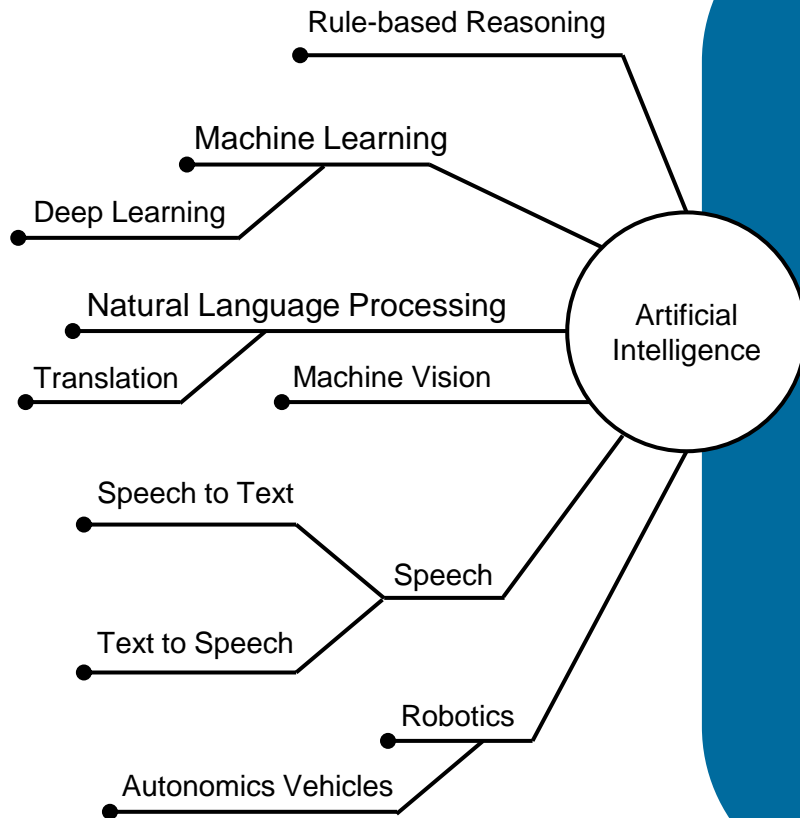
**90%**

Of modern BI platforms will have natural search and AI capabilities

*Augmented Analytics is the Future of Data and Analytics, Gartner 2017*

# Embed AI components drive the intelligent enterprise

## AI areas of research



### Artificial Intelligence (AI)

- Intelligence exhibited by machines
- Broadly defined to include any simulation of human intelligence
- Expanding and branching areas of research, development and investment
- Includes robotics, rule-based reasoning, natural language processing (NLP), knowledge representation techniques (knowledge graphs), ...

### Machine Learning (ML)

- A subfield of AI which aims to teach computers the ability to do tasks with data, without explicit programming
- Uses numerical and statistical approaches, including artificial neural network techniques to encode learning
- Models are built using “training” computation runs, can also train through usage

### Deep Learning (DL)

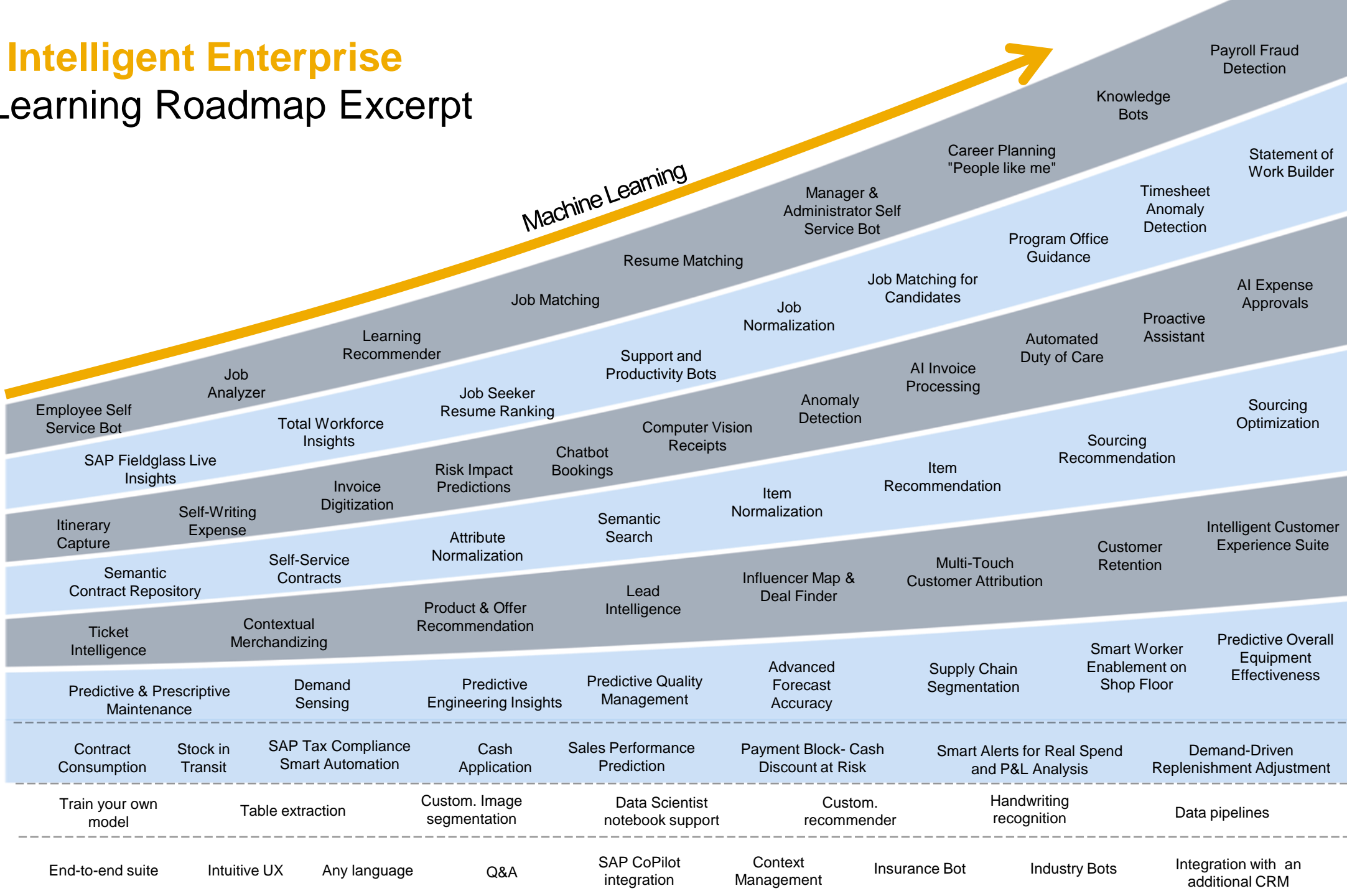
- A subfield of ML that uses specialized computational techniques, typically multi-layer artificial neural networks
- Layering allows cascaded learning and abstraction levels (e.g. line recognition > shape > object > scene)
- Computationally intensive enabled by clouds, GPUs, and increasingly more specialized HW such as FPGA and new custom hardware

Source: SAP CMI, synthesis of multiple sources – May 2017

# Build the Intelligent Enterprise

## Machine Learning Roadmap Excerpt

Machine Learning



SAP SuccessFactors



SAP Fieldglass



SAP Concur



SAP Ariba



SAP C/4HANA

Manufacturing & Supply Chain

SAP S/4HANA®

ML Foundation



















Conversational AI












Live

# SAP Leonardo embedded in S/4HANA

## Machine Learning and Predictive Analytics

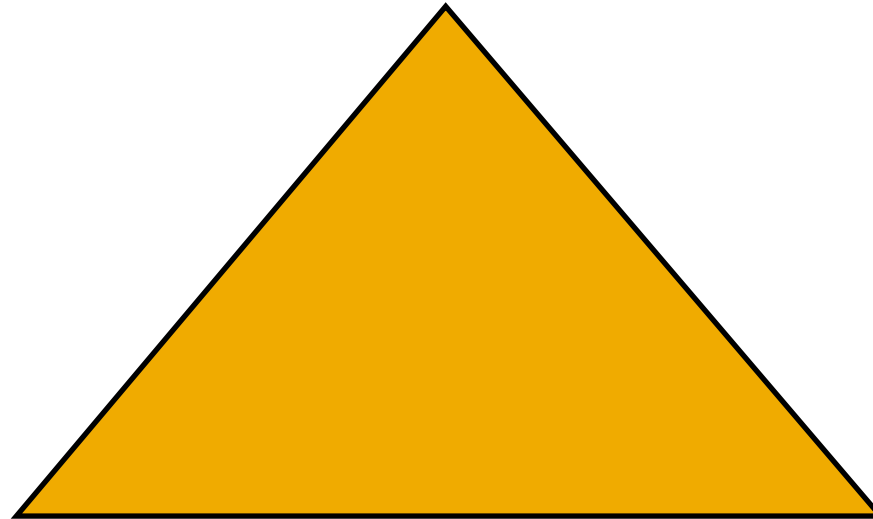
	<b>SAP S/4HANA</b> Sourcing and Procurement	+		<b>SAP Leonardo</b> SAP Predictive Analytics	=		<b>Contract Consumption</b> Proactively renew contracts by predicting their expiration and consumption
	<b>SAP S/4HANA</b> Material Management	+		<b>SAP Leonardo</b> SAP Predictive Analytics	=		<b>Stock in Transit</b> Mitigate production risks by forecasting stock in transit delays
	<b>SAP S/4HANA</b> Sales Analytics	+		<b>SAP Leonardo</b> SAP Predictive Analytics	=		<b>Sales Quotation Conversion</b> Improve Sales Forecasts
	<b>SAP S/4HANA</b> Procure-to-Pay	+		<b>SAP Leonardo</b> SAP Predictive Analytics	=		<b>Payment Block – Cash Discount at Risk</b> Avoid loss of cash discounts
	<b>SAP S/4HANA</b> Finance	+		<b>SAP Leonardo</b> SAP Predictive Analytics	=		<b>Smart Alerts for Profit &amp; Loss Analysis</b> Get informed of hidden unusual costs and revenue opportunities
	<b>SAP S/4HANA</b> Idea	+		<b>SAP Leonardo</b> SAP Predictive Analytics	=		<b>Project cost forecast</b> Mitigate project budget overruns

# SAP Leonardo intelligent applications for Machine Learning and Predictive

SAP S/4HANA®		+	SAP® Leonardo		=	ML Enabled Business Scenarios	
	<b>SAP S/4HANA</b> Finance	+		<b>SAP Leonardo</b> SAP Predictive Analytics	=		<b>SAP Business Integrity Screening</b> Increase accuracy of fraud alerts with predictive analytics
	<b>SAP S/4HANA</b> Finance	+		<b>SAP Leonardo</b> SAP Predictive Analytics	=		<b>SAP Tax Compliance</b> Smart Automation on Compliance Issue Processing
	<b>SAP C/4HANA</b> Cloud 4 Customer	+		<b>SAP Leonardo</b> SAP Predictive Analytics	=		<b>SAP Opportunity Scoring</b> Increase win rates with Predictable sales pipeline and revenue forecast

# Three Key Initiatives

**SAP Predictive Analytics**  
simplifies machine learning  
for Data Scientists



**SAC Smart Predict**  
democratizes machine learning  
for Business Analysts

Project  **ODIN**

**SAP Data Science Platform\***  
provides openness and flexibility  
for Data Scientists

*\*Planned – 2019*

# Sneak Preview: Data Science Platform

## Components



### SAP Data Hub

Data sharing, pipelining, and orchestration. Including data preparation and cleaning.



### SAP Predictive Analytics

Operationalization and automation



### SAP Leonardo ML Foundation

Deep Learning (text, image, video, audio)



### SAP HANA ML

In-database Machine Learning

## Solution

One integrated offering

One data science front end

Full lifecycle management

Integrated with SAP

# What Makes Us Unique?



- Bring Your Own Model
- Open Language and Framework Support
- Deploy Anywhere



- Deploy with a click
- Manage thousands of models in production
- Automate retraining, maintenance, and retirement



- Every SAP ML Capability
- Integration into any application via API
- Embed into SAP Applications

# Thank you.

**Marcus Pannier**

Head of SAP Leonardo & Analytics

Middle and Eastern Europe

[marcus.pannier@sap.com](mailto:marcus.pannier@sap.com)

**Nicolas Plocharski**

Senior Director

SAP Leonardo & Analytics

Global Center of Excellence

[nicolas.plocharski@sap.com](mailto:nicolas.plocharski@sap.com)

Follow us



[www.sap.com/contactsap](http://www.sap.com/contactsap)

© 2018 SAP SE or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company.

The information contained herein may be changed without prior notice. Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors. National product specifications may vary.

These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

In particular, SAP SE or its affiliated companies have no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation, and SAP SE's or its affiliated companies' strategy and possible future developments, products, and/or platforms, directions, and functionality are all subject to change and may be changed by SAP SE or its affiliated companies at any time for any reason without notice. The information in this document is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, and they should not be relied upon in making purchasing decisions.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies.

See [www.sap.com/copyright](http://www.sap.com/copyright) for additional trademark information and notices.