SAP HANA: Use Cases and Business Cases for Innovation and Differentiation

Tim Hardy, VP Global Platform Solutions Group
April, 2015

Customer

SAP®

Agenda

Why HANA enables Innovation

Some examples (videos)

Business case discussion

Innovation through Data Exploitation
A Business Imperative…..

"Big Data isn't just one more technology initiative. <u>In fact, Big Data isn't a technology initiative at all</u>; it's a business program that requires technical savvy"

BAIN & COMPANY ④

"The (effective) use of big data will become a key basis of competition and growth for individual firms."

McKinsey&Company

Innovation means delivering solutions that take a business to the next level of success

AUTOMOTIVE

Manage safety and operational efficiency of large fleets in real-time

Enabled processing and analysis of data from 600 fleets with 1000 assets (trucks and trailers) each, providing **Pirelli** with real-time data updates every 1-2 minutes for 16 hours per day, 6 days a week.

MENU

PUBLIC SECTOR

Identify traffic hazards across the city in real-time and plan road repairs

City of Boston uses a mobile app and HANA platform to crowd source road information and identify potholes and road hazards in the city streets

MENU

UTILITIES

Smart Meter Analytics to better manage energy production and distribution in real-time

When manual forecasting of 3.15 Billion records every year could no longer cope, SAP HANA Innovation Award Finalist, **Alliander**, used SAP HANA to improve forecasting of peak energy usage in real-time and provide customers with greater insight into their energy consumption, helping them reduce their energy usage/spending

MENU

AEROSPACE & DEFENSE

Simplify Production

Spirit Aerosystems set out to become more lean on a total cost perspective. HANA helped them achieve this with 25% reduction production flow times, 30% reduction inventory levels, and 40% reduction overtime expenses

MENU

Innovation and Differentiation

Real-Time Fraud Reduction (Bosch Siemens)

>50% Faster foreign currency revaluation (Zurich Ins)

30% reduction in assembly inventory levels (Spirit Aero)

25% improvement in production flow (Spirit Aero)

Reduced maintenance costs by approximately 1% to 2% (Alliander)

Reduce Shipping time from 2 days to 1.25 days (McKesson)

Extra Day of Testing Capacity (AMG)

Reducing return rates. 1% yields a seven-digit euro savings. (HSE24)

Innovation and Differentiation

Bookings, Billings and Backlog Analytics – LSI, Cisco, Altera, Jabil Circuits

Transaction Anomaly Detection – Bosch-Siemens

Supply Chain forecast based on Yield – Altera, Intel

Shop floor cycle time optimization and OEE – Spirit Aerosystems, Airbus

Fuel Optimization, Asset Optimization, Route Optimization – ARI, Aurizon, Linfox

Load Forecasting – Centerpoint Energy, Alliander, Sempra, Southern California Edison

Call Center Optimization – Centerpoint Energy, Alliander

Retail Analytics & Slow moving item identification – Palacio Di Hierro, Liverpool, Macy's

Loyalty Analytics – Yodabashi, Burberry, Loblaws, Palacio Di Hierro

Revenue/Margin Assurance - Vodafone

Churn Analysis (Golden path) – America Movil, Vodafone

Total Margin Management – Conagra, Colgate

Trade Promotion Effectiveness – Kraft, Mondelez, SAB Miller

Asset utilization optimization – Surftengas, Qatar Gas, ARAMCO
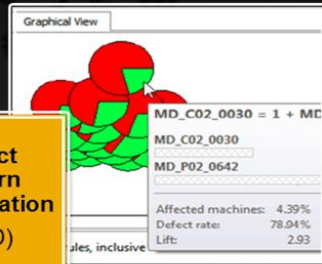
Simplified Predictive Maintenance – Philips 66

SAP

Innovation and Differentiation

Predictive Maintenance & Service
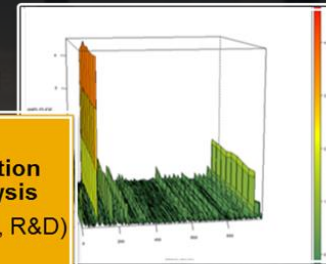# Selected Co-Innovation Projects

Emerging Issues (R&D)

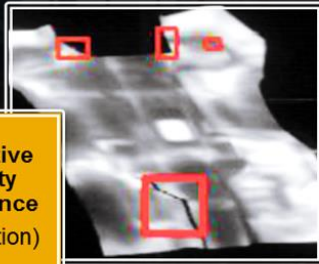**Defect Pattern Identification** (R&D)
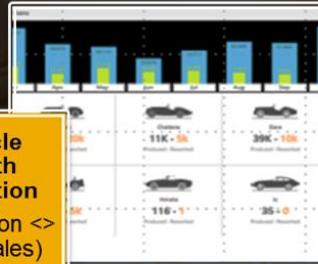
Machine Health Analysis (Service, Sales, R&D)

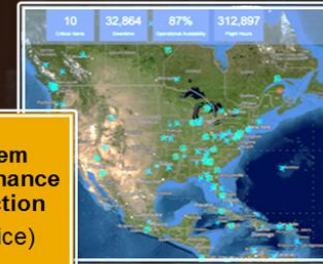**Vibration Analysis** (Service, R&D)

Predictive Quality Assurance (Production)

Vehicle Health Prediction (Production <> After-Sales)

System Maintenance Prediction (Service)

The problem with current IT Landscape
Silos, delay and complexity hinders business agility and innovation

Manufacturing App	Finance App	Sales App	Analytics App	Service App	Spatial App	Streaming App	Predictive App
Logic	Logic	Logic	Logic	Logic	Logic	Logic	Logic
Data	Data	Data	Data	Data	Data	Data	Data

ETL & Staging

Data

ETL & Staging

Data

ETL & Staging
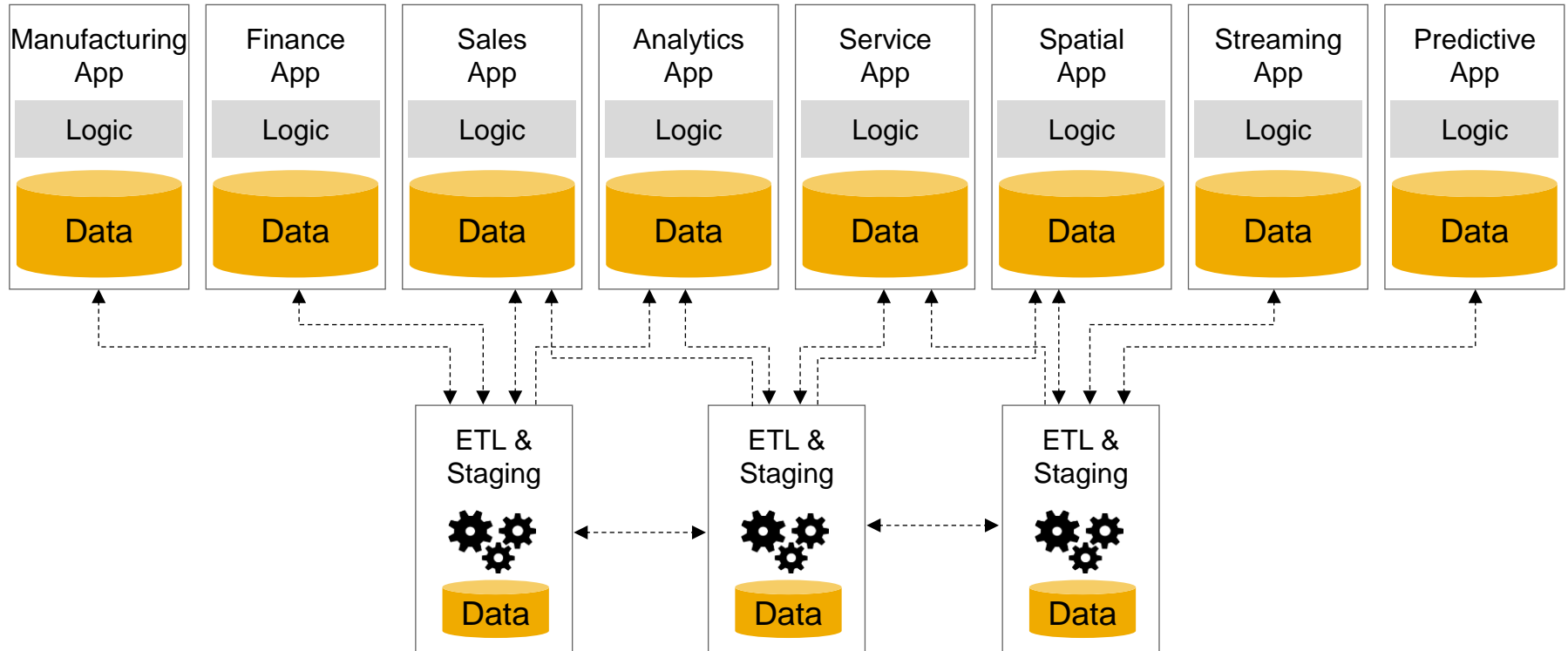
Data

Application silos

Multiple data copies

Batch processing

Partial business view

No real-time insights

Limited ability to innovate

The solution: Make all data readily available to all applications
Reduce data movement and data latency – improve business agility & innovation

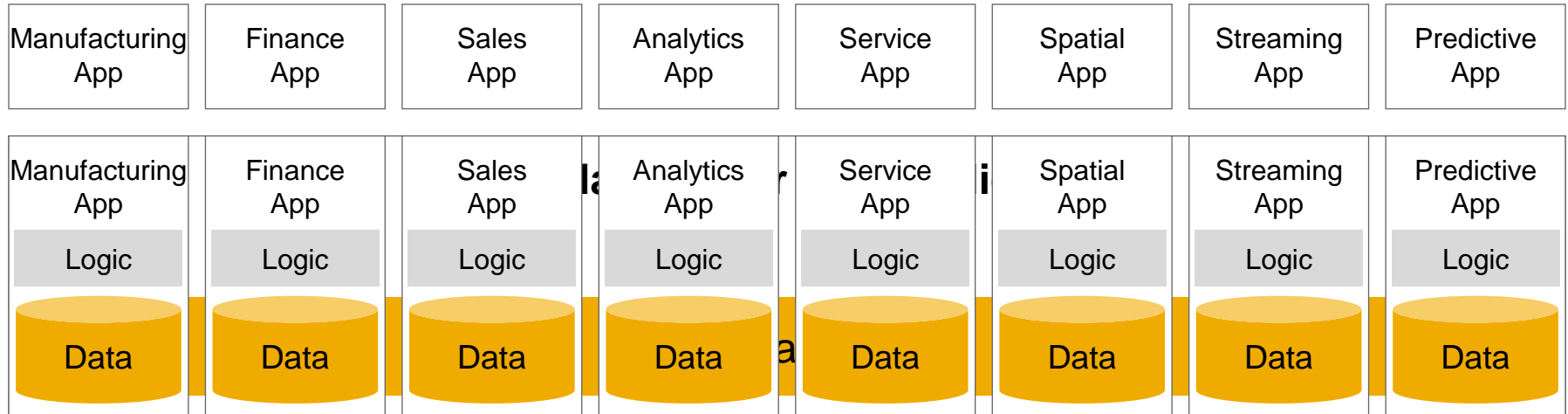| Manufacturing App	Finance App	Sales App	Analytics App	Service App	Spatial App	Streaming App	Predictive App

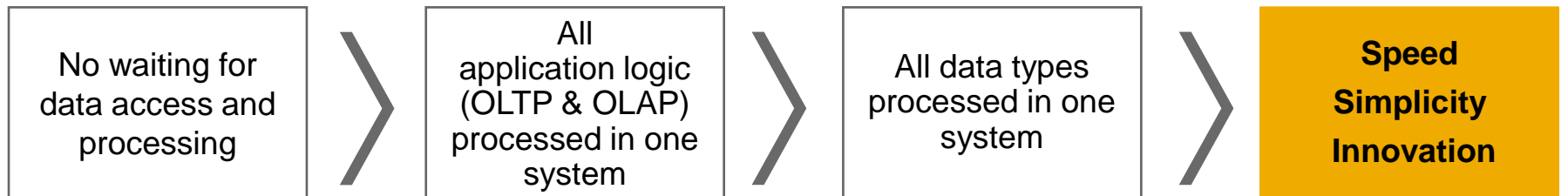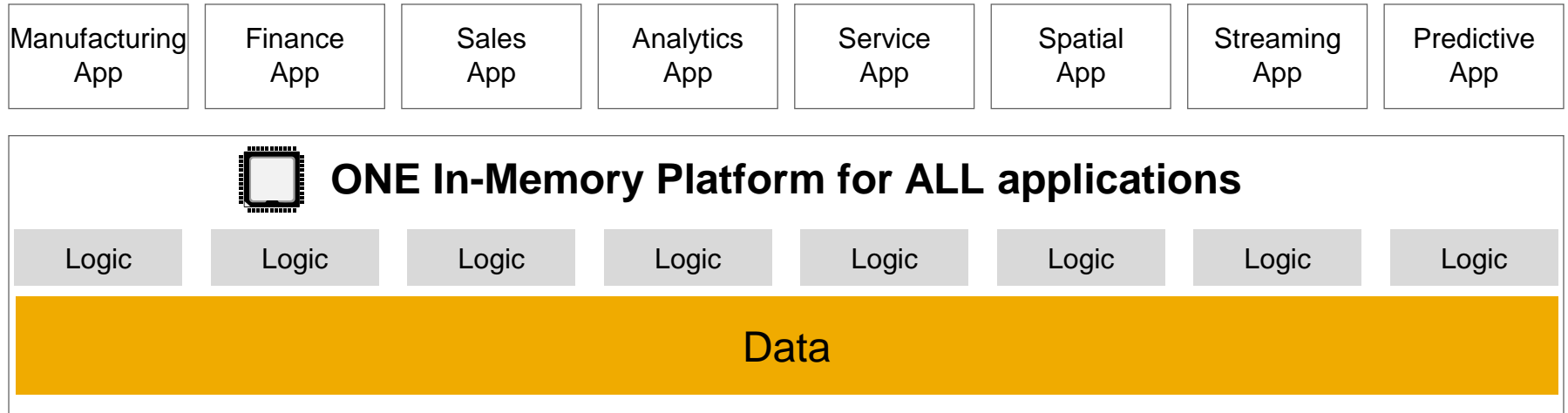| Manufacturing App	Finance App	Sales App	Analytics App	Service App	Spatial App	Streaming App	Predictive App
Logic	Logic	Logic	Logic	Logic	Logic	Logic	Logic
Data	Data	Data	Data	Data	Data	Data	Data

Unified application workloads
Unified data – single copy
Real-time processes

> **Complete business view**
> **Ability to react in real-time**
> **Ability to innovate**

The solution is only possible
with in-memory data management

Only data in-memory enables all applications to become real-time

Manufacturing App	Finance App	Sales App	Analytics App	Service App	Spatial App	Streaming App	Predictive App

ONE In-Memory Platform for ALL applications

Logic	Logic	Logic	Logic	Logic	Logic	Logic	Logic

Data

No waiting for data access and processing > All application logic (OLTP & OLAP) processed in one system > All data types processed in one system > **Speed Simplicity Innovation**

A radically new approach is required to unlock potential

28% — Drive business innovation

72% — Keep the lights on

Forrester IT Survey, 2013

Today

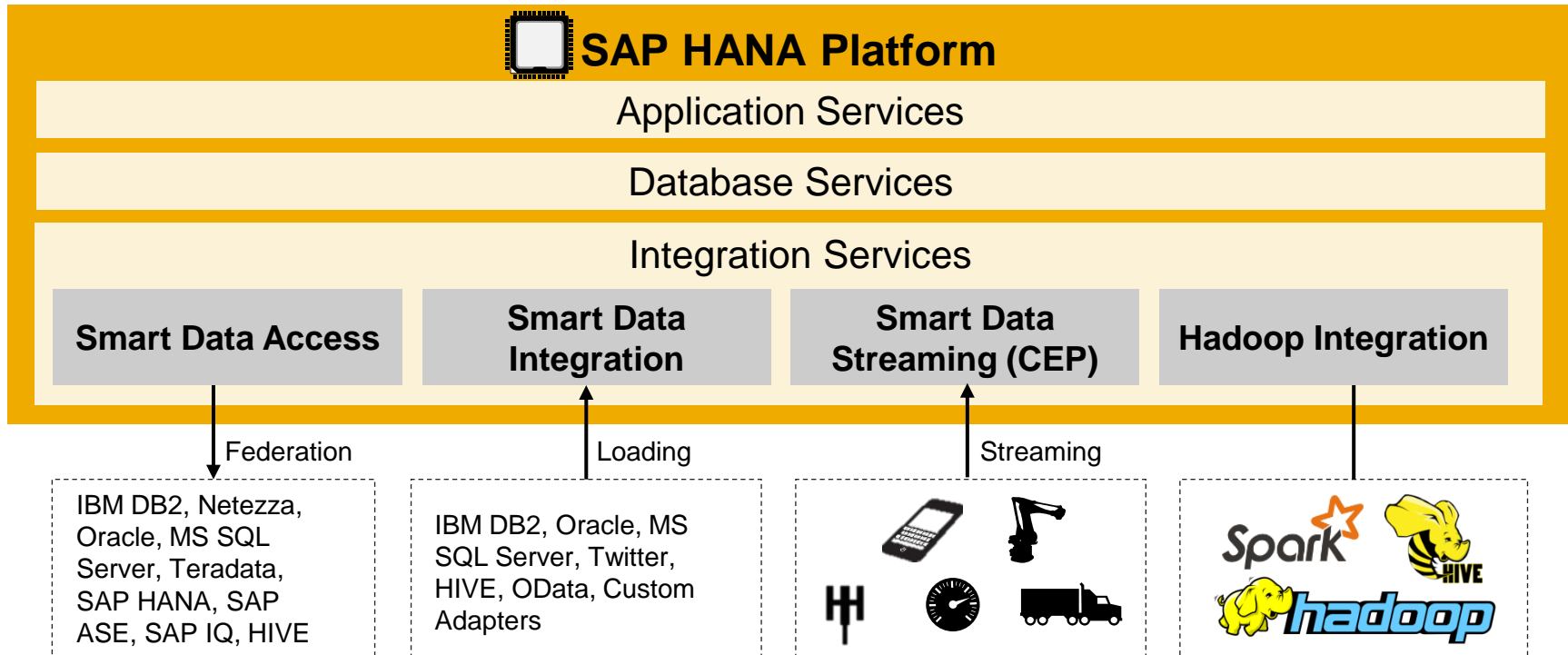Drive business innovation

Keep the lights on

Future
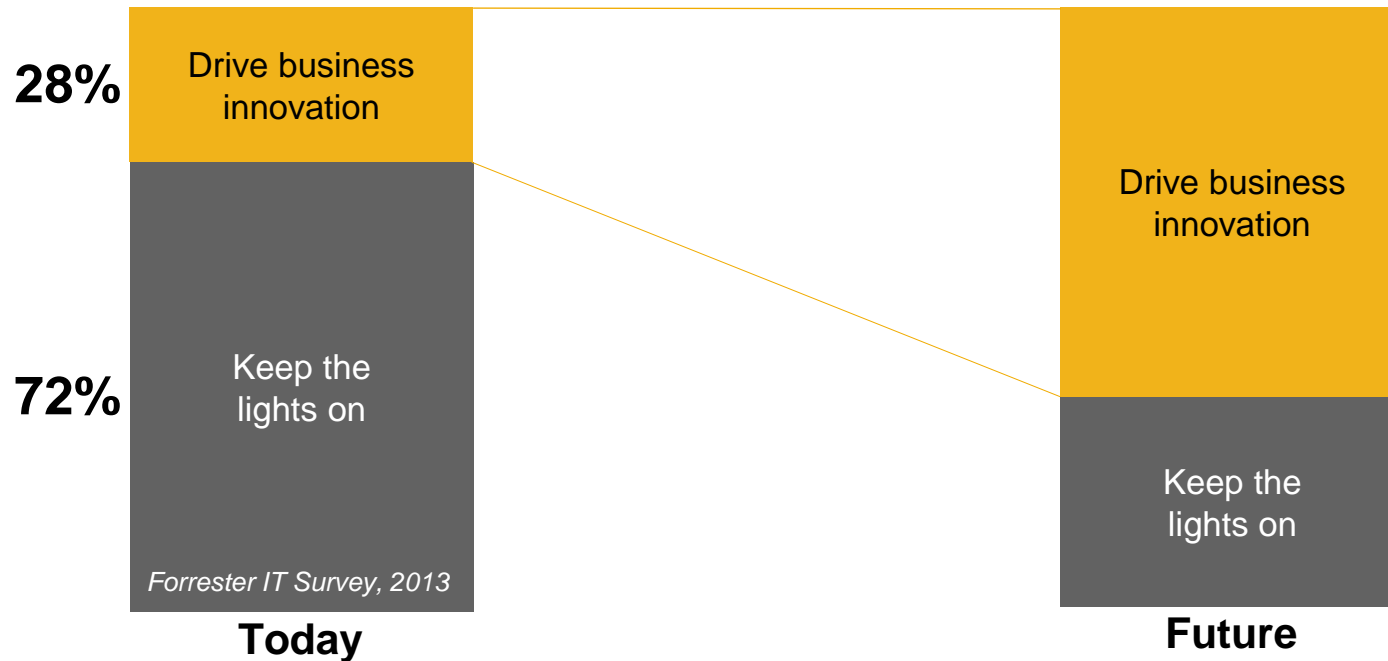
" 40% executives **worry that their organizations will not keep pace** with technology change and lose their competitive edge. "

McKinsey study, 2013

SAP HANA Platform – Integration Services
Data from any source for a complete view of the business

SAP HANA Platform

Application Services

Database Services

Integration Services

Smart Data Access	Smart Data Integration	Smart Data Streaming (CEP)	Hadoop Integration

Federation | Loading | Streaming

IBM DB2, Netezza, Oracle, MS SQL Server, Teradata, SAP HANA, SAP ASE, SAP IQ, HIVE

IBM DB2, Oracle, MS SQL Server, Twitter, HIVE, OData, Custom Adapters

Spark, HIVE, hadoop

- Access information stored in data silos while keeping the data in place
- Replicate and move any type of data in real-time to the cloud and on-premise when necessary
- Capture and analysis live data streams and route to appropriate storage or dashboard
- Multiple access points from HANA to Hadoop data: thru Spark, Hive, HDFS and Map Reduce functions

SAP HANA data management and application platform transforms businesses

SAP HANA Platform

Application Services

Database Services

Integration Services

All Data
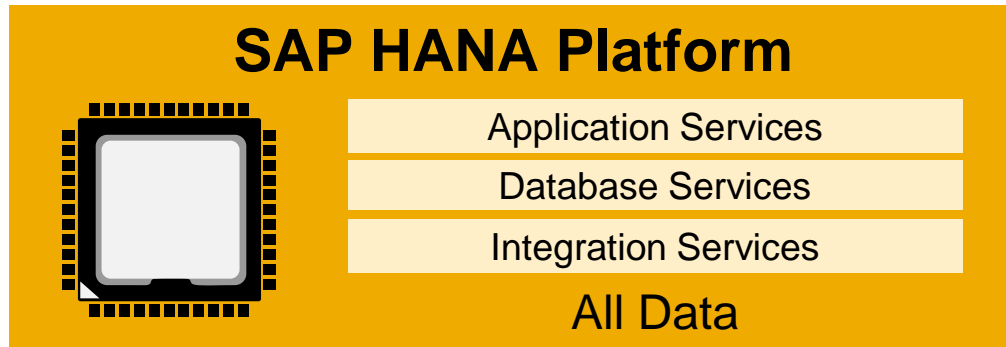
" Think about a problem you can't solve – a 10 or 50 million dollar problem… and you apply HANA. **That's the real return**."

James Cocca, CIO, Spirit AeroSystems

" **I can run my business differently**. I can optimize for revenue; for fill rate; run different scenarios and [find] opportunities we didn't have before."

Jody Giles, CIO, Under Armour

" We aren't spending 4 weeks to add and test new BI requirements – **it's done in 20 minutes**."

Pawel Mierski, Molson Coors

Innovation Award Candidates 2015

Willem Eelman
CIO, Unilever

Under Armour

Centerpoint Energy

marketing intelligence, customer interactions, and load forecasting.

eBay

Pirelli

Hamburg Port Authority

Where are the drivers for a business case for HANA?

	Conservative	Likely

Total — € AAA / € BBB

10% Architecture Simplification — € AAA / € BBB

- Servers (including move from AIX to Linux, HANA vs. Oracle, BWA) — € AAA / € BBB
- Storage reduction — € AAA / € BBB
- Software (DB, BI, Analytics, Operational Reporting) — € AAA / € BBB
- Other Data centre costs (network, energy, floor spaces etc.) — € AAA / € BBB
- Data centre administration — € AAA / € BBB

30% People Productivity — € AAA / € BBB

- BI Operations costs — € AAA / € BBB
- BI Project Costs — € AAA / € BBB
- Application Operations — € AAA / € BBB
- Application Project — € AAA / € BBB
- Shadow IT — € AAA / € BBB
- Reconciliation efforts — € AAA / € BBB

60% Business Benefits — N/A / N/A

- Business people productivity — N/A / N/A
- Cost savings (reduced inventory) — N/A / N/A
- Additional revenue (increased up-sell, reduced churn) — N/A / N/A
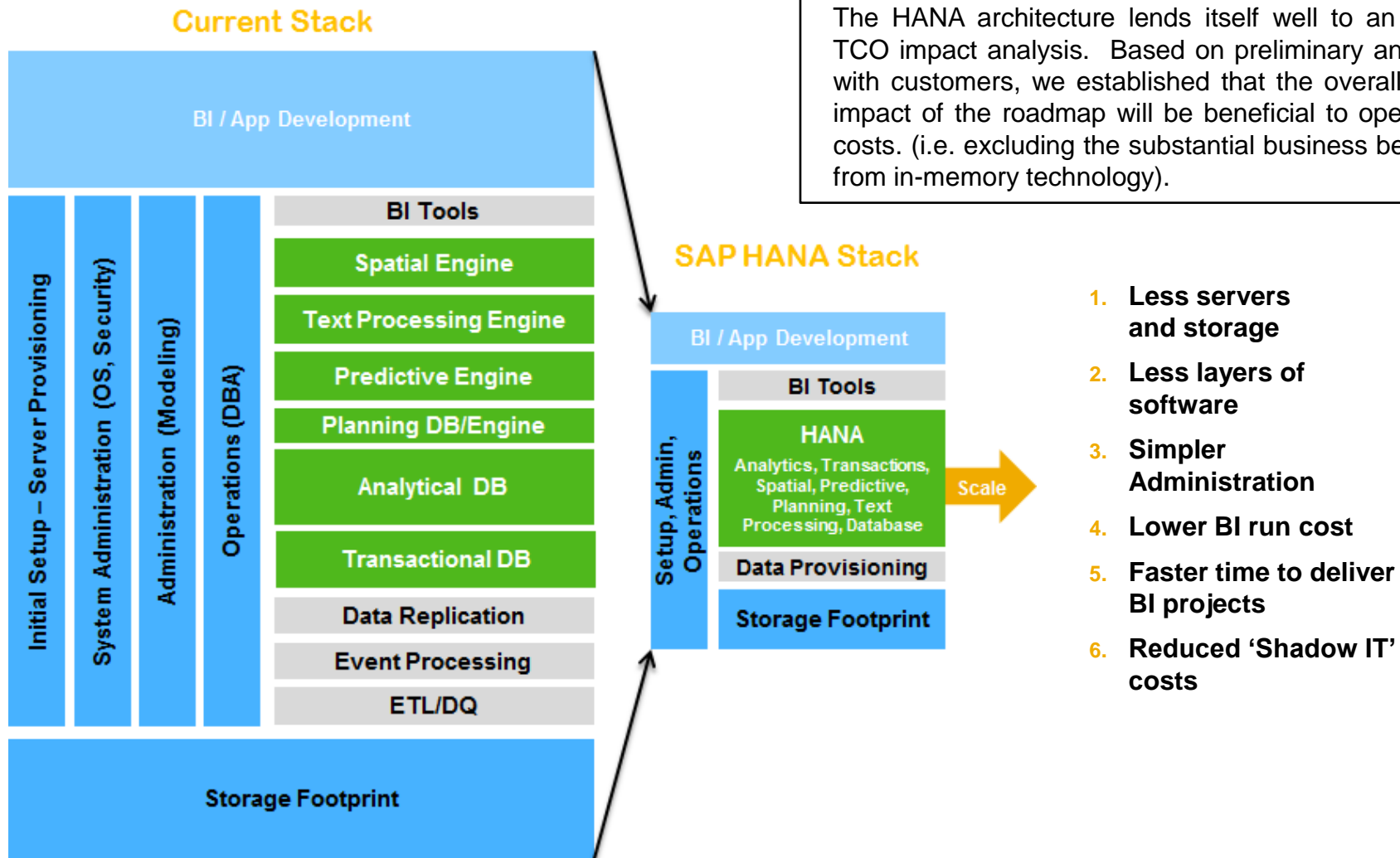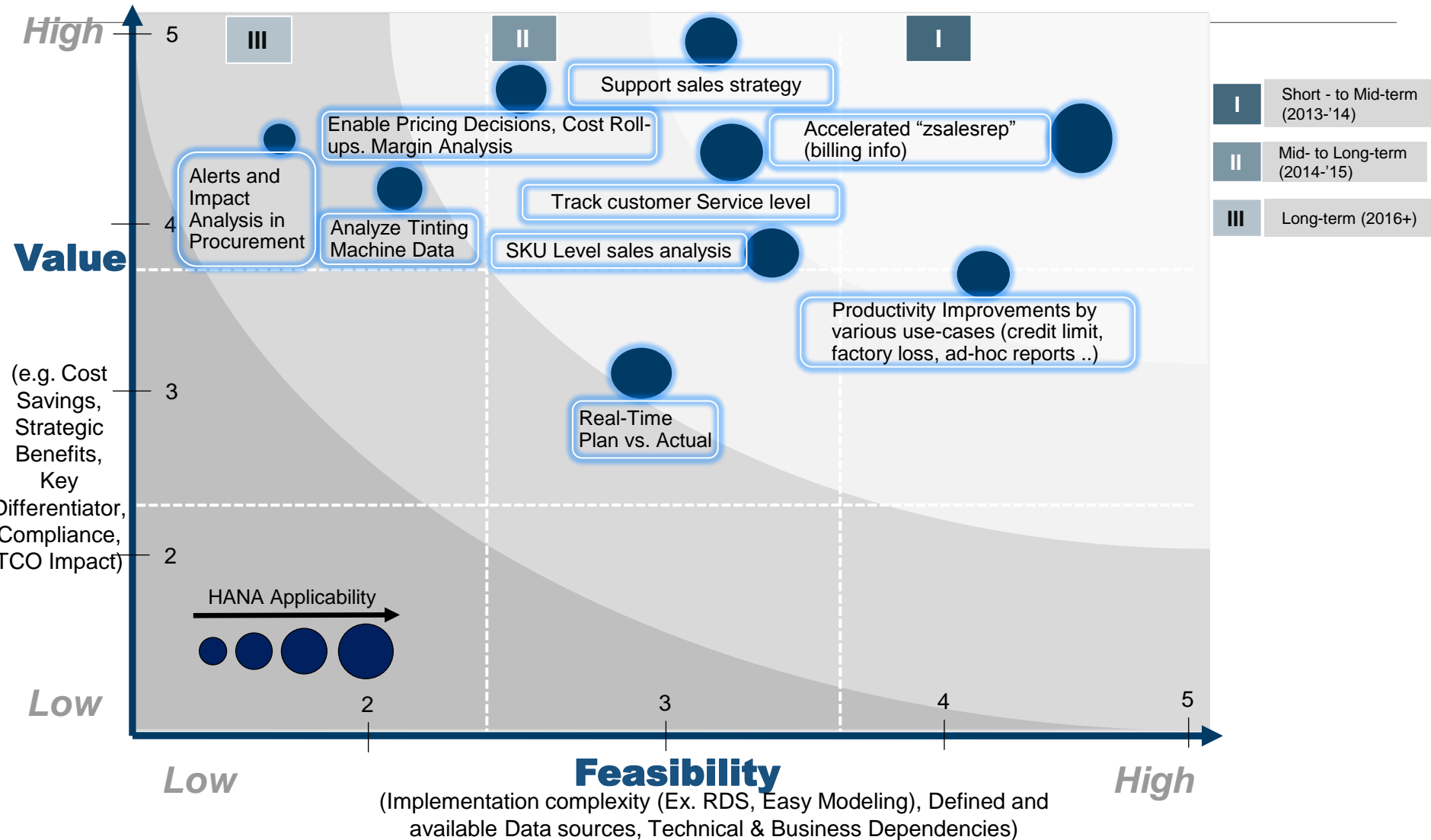
Project Efficiency ~60% reduction

"We took an analytic that took us 6 months to develop and we redeployed it on HANA in two weeks. Results come back so quickly now, we don't have time to get coffee" Justin Replogle, , Director – IT, Honeywell

Current Mode of Operation (CMO)

Traditional RDBMS

~7 month project

6 Weeks Define	4 weeks Develop 2 days data	3 weeks Test	3-4 weeks Rework	2 weeks Tune	2 weeks Backload	4 weeks Volume Test	2-3 weeks Report	2 weeks Implement
Mth 1	Mth 2	Mth 3	Mth 4	Mth 5		Mth 7	Mth 8	

Future Mode of Operation (FMO)

~3 months project

SAP HANA (column-store in-memory DB)

Jun-09	Jul-08	Aug-08	Sep-08

4 weeks Define	4 weeks Develop/Test/Rework unlimited data!	1 day Tune	1-3 days Backload	2 weeks Report D'ment & Volume Test	1-2 weeks Implement

• Replicate rather than ETL
• Avoid physical model (4-6 layers/ & transformations)
• Single Modelling Tool (Power Designer)
	• Less Development
	  • Activate replication rather than ETL
	  • No physical layers
	• Less Testing
	  • Replication easier to test
	  • Fewer transformations
	• Faster, Iterative test/fix/test
	• Model-driven development
		• No index (re)-build
		• No need to change physical data model (e.g. aggregations)
		• No embedded calculation
		• Only need to set parameters
			• Virtual Model
			• Replication or ETL can go 50X faster (e.g. BW PoC)
				• Higher self-service/analysis means less reports to build
				No need to renew sematic layer
					• Virtual Model
					  • Easily transported
					  • Faster reload (no intermediate physical layers, in-memory)

The Opportunity to Simplify and Improve Productivity - at reduced cost (TCO)

Current Stack

SAP HANA Stack

The HANA architecture lends itself well to an initial TCO impact analysis. Based on preliminary analysis with customers, we established that the overall TCO impact of the roadmap will be beneficial to operating costs. (i.e. excluding the substantial business benefits from in-memory technology).

1. **Less servers and storage**
2. **Less layers of software**
3. **Simpler Administration**
4. **Lower BI run cost**
5. **Faster time to deliver BI projects**
6. **Reduced 'Shadow IT' costs**

Identified use-cases were qualified/prioritized and phased for implementation

Value (e.g. Cost Savings, Strategic Benefits, Key Differentiator, Compliance, TCO Impact)

Feasibility (Implementation complexity (Ex. RDS, Easy Modeling), Defined and available Data sources, Technical & Business Dependencies)

- III — Long-term (2016+)
- II — Mid- to Long-term (2014-'15)
- I — Short - to Mid-term (2013-'14)

Use-cases plotted:
- Support sales strategy
- Enable Pricing Decisions, Cost Roll-ups. Margin Analysis
- Accelerated "zsalesrep" (billing info)
- Alerts and Impact Analysis in Procurement
- Track customer Service level
- Analyze Tinting Machine Data
- SKU Level sales analysis
- Productivity Improvements by various use-cases (credit limit, factory loss, ad-hoc reports ..)
- Real-Time Plan vs. Actual
- HANA Applicability

Design Thinking Workshop

Realize Business Innovation Idea(s)

▼

- Re-think existing problems to **unlock spaces to realize the business innovation**

- Visualize the **impact of disruptive technology** related to your business

Solve Problems using Design Thinking + Business Thinking to Create Value
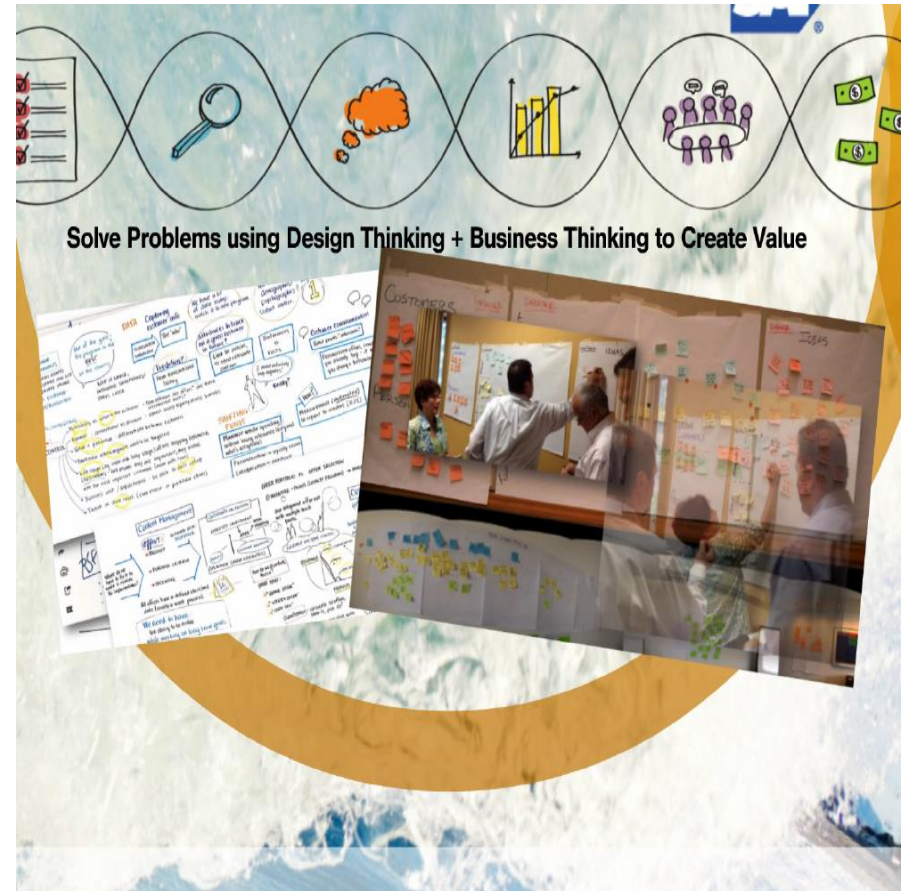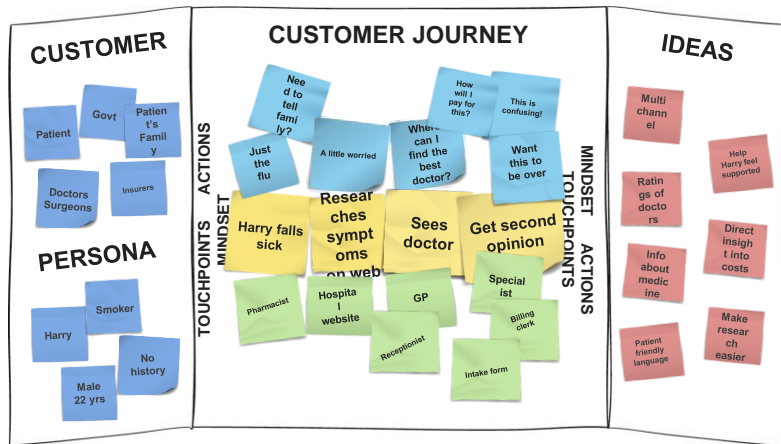
Thank you

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