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# Next Generation Location Intelligence

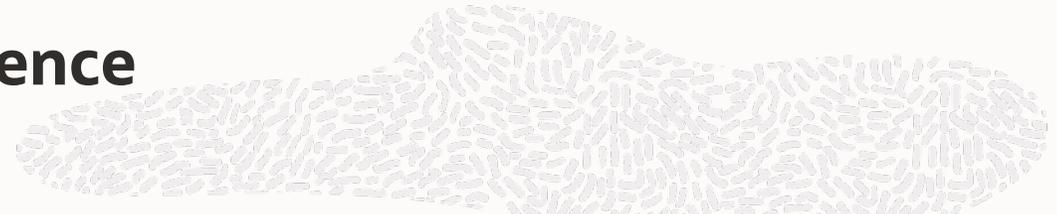
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Vice President of Development

Oracle Spatial

# Business Intelligence vs Location Intelligence



The Business Intelligence approach: Know your numbers

The Location Intelligence approach: Know your Spatial Context

**Sales VP**

- Top deals in Play
- Sales review
- Pipeline trend
- Revenue trend

**Marketing Analyst**

- Campaign performance
- Campaign cost

**Sales Manager**

- Team performance
- Quota attainment
- Pipeline review
- Demand generation

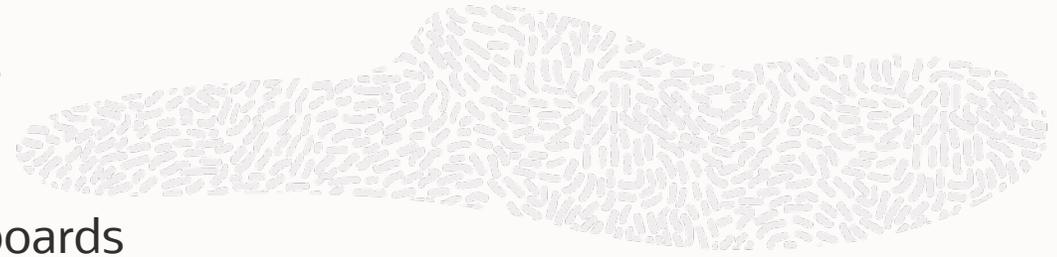
**Service Manager**

- Open incidents
- Closed incidents
- Team performance



# Current generation of LI tools and products

- Focused on enabling and empowering the Business users
  - Makes it easy to integrate different data sets into dashboards
  - Rich mapping options
  - **Ability to do spatial analytics at the presentation layer**
  - Seamless integration of maps with BI charts and other visualization types



## ANALYSTS

Faster time to insights  
Share, collaborate and maximize community's wisdom



## BUSINESS LEADERS

Easy, timely, proactive business insights  
Empower to go beyond consuming others' findings



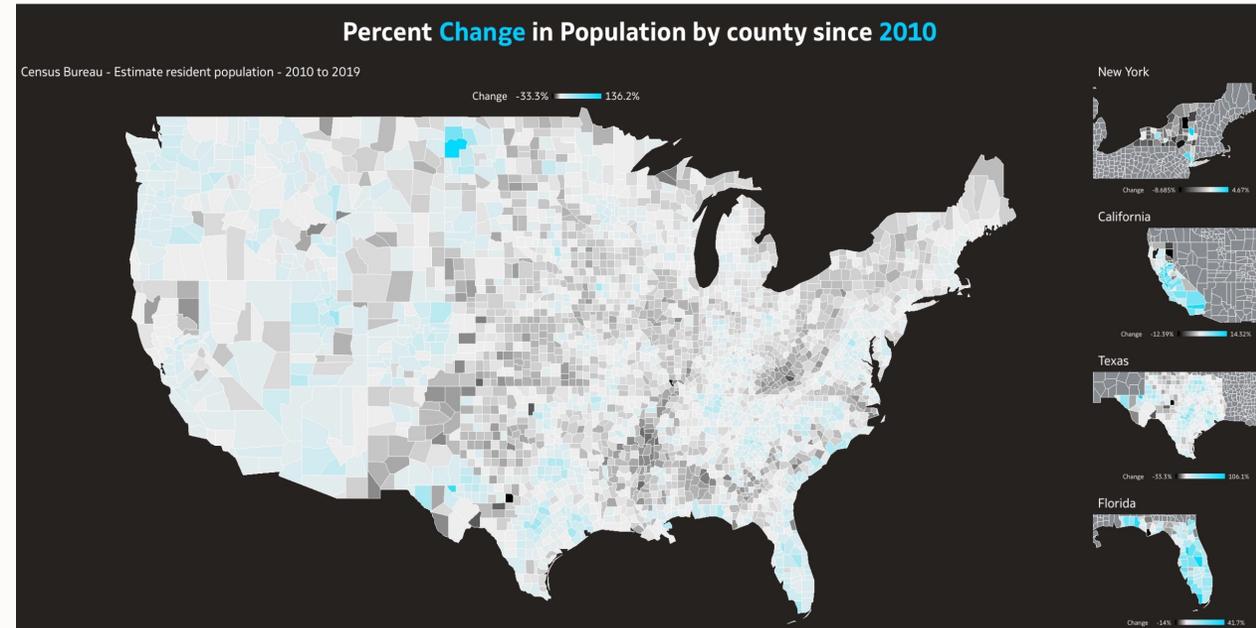
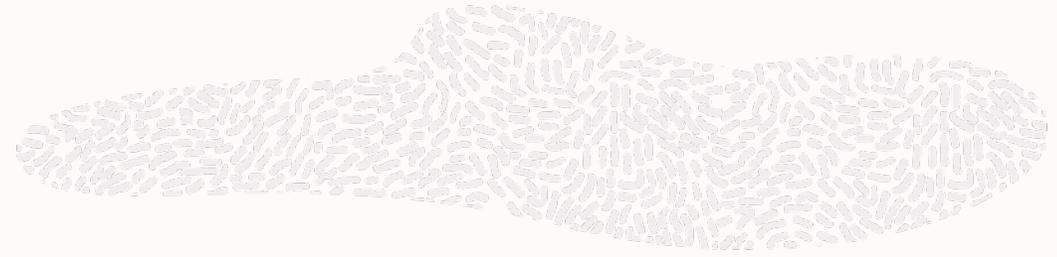
## DEVELOPERS

Develop and deploy analytic applications for people to customize and personalize  
Embed **location analytics** in any application context



# Limitations of the current LI approaches

- Dashboards don't have built-in analytics processes
- they share information but do not provide recommended courses of action at the right moment or in a decision maker's workflow
- These are descriptive and not predictive analytics
  - analysts want a final answer and recommendations on what to do next
- They would rather have data and actionable insights come in easily digestible bites versus needing to dig for answers in dashboards and reports
- And the truth is they are digging; visualizations are often too broad to address multiple questions, too difficult to customize, and frankly, have too many insights



## Dashboards are not the answer

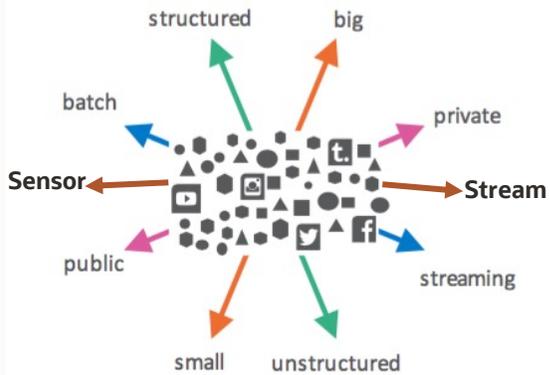
For analytics to advance, we must extend dashboards or deliver personalized intelligence to more decision makers

Gartner predicts that “dashboards will be replaced with automated, conversational, mobile and dynamically generated insights customized to a user’s needs and delivered to their point of consumption. This shifts the insight knowledge from a handful of data experts to anyone in the organization.”

Instead of wasting time jumping from where the data resides (in dashboards) to where work is done, embedded analytics enables users to do both simultaneously: **get insights and take action**

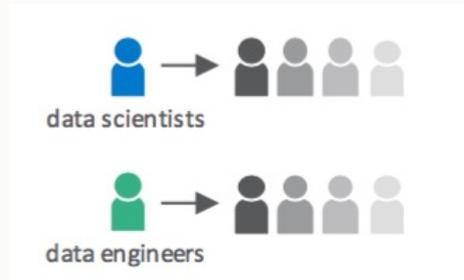
# Challenges for Modern LI

Organizations need to Cope with Diverse Data



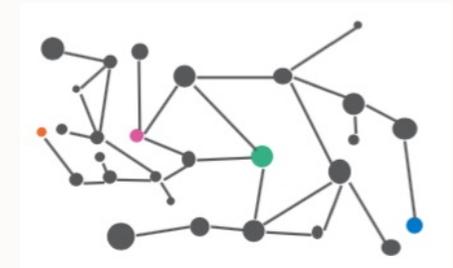
One solution to access all types of data

Specialized Skills in Short Supply



Empower Business users to achieve their goals by making it simple to use

Emerging Technologies are Fragmented and Complex



Leverage emerging technologies like AI and ML, big data, and cloud using single unified platform

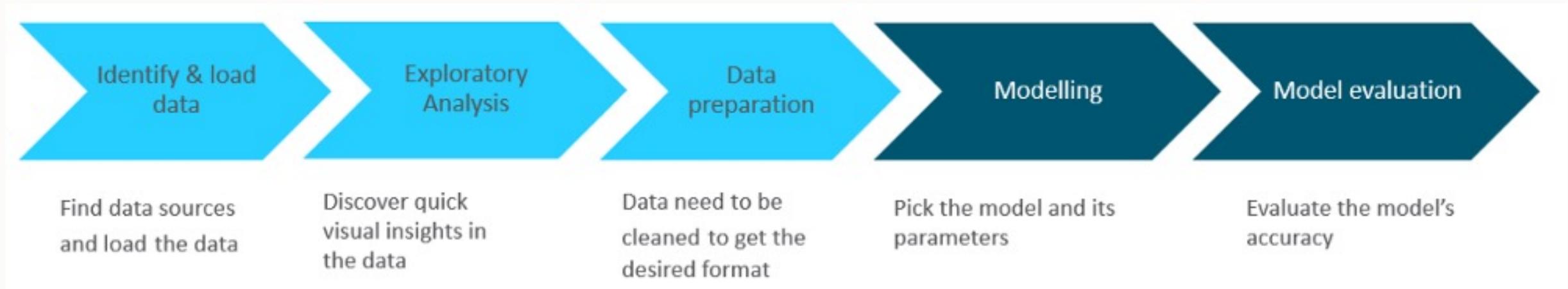
# What do we expect to see in the next generation LI?

Instead of using technology to put data in front of people where they already are working, we continue to ask people to leave their business apps and turn to dedicated tools or dashboards for answers

- Next generation of LI will take the best of the previous generations of BI and LI to empower every worker to make smart, data-driven decisions
- As technology evolved and tools became easier, the progression of BI moved to reports and dashboards delivered by new experts—analysts
- This made analytics more accessible, but still didn't make self-service data insights a reality across the business

# AI and ML to the rescue?

- AL/ML can help in providing a fully immersive digital experience for the customers
- But today the barriers to use AI/ML are very high



## New Technology that will impact LI



- Previous generations of BI gave us technology to make data more understandable
  - data visualization to make data more understandable
  - cloud to enable access from anywhere or any device
  - extensible frameworks so we can embed data into other applications
- Today, when we combine that technology with AI, we can extract data insights and embed them into our CRM, workplace collaboration apps, custom business apps, etc.
- Instead of asking users to pause their jobs and dig through dashboards for answers, we can put digestible insights and expert knowledge in the apps they are already using



# Top 4 technological Advances we can in LI in the next 5 years



Immersive  
User  
Interfaces

Data  
Management  
as a Service

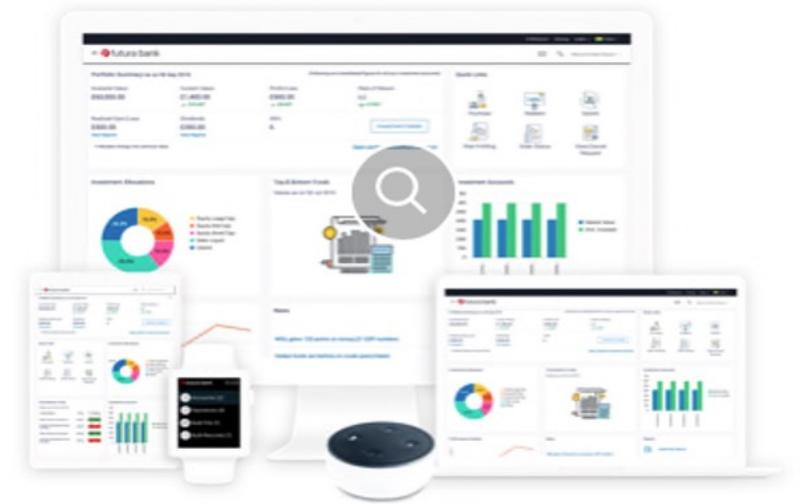
Prediction as  
a Service

Self-Service  
Analytics

# Stay connected with customers and gain real-time insights about the physical world

## Provide Immersive User Experience

- Get out-of-the box support for all channels, including mobile and wearable devices
- Enjoy better experience with a modern and responsive design-based UI
- Ensure easy navigation and precise search options for customers
- Customers can converse with voice-enabled personal assistants
- Ensure convenience with chatbot interface built into mobile applications and social media messenger apps
- Enable retail and corporate customers to respond to notifications and transact via wearable devices
- Offers robust built-in security management



# Data Management as a Service

- The abstraction of storage and compute enables the logical data store
  - Maximize value of data
- The cloud vastly accelerates the adoption of this architecture by customers
- Minimize costs without compromising performance
- Mature technology needed at each layer to deliver this architecture today
- Each engine requires extensive optimization and integration
  - Queries are supported independent of the data platform, so each engine needs to be optimized
  - One way to achieve storage independence is to enable REST end points for all data

# Prediction as a Service

- Generation of electricity as a service was a disruptor
- Leasable compute/storage as a service was a disruptor
- Could leasable, customizable prediction engines be the next big disruptor?

Emergence of tools to:

- Learn the commonality between problems are repurpose learning (transfer learning)
  - Example:
    - Use image recognition models to build special purpose prediction models such as radiology applications
    - Use aerial imagery application built for, say land use classification to identify roof types.



The Burden Water Wheel, part of the [Burden Iron Works](#) in [Troy, New York, United States](#).

Image credit: Wikipedia

# Self Service Spatial Analytics

- Self-service spatial analysis operations
- Visual query builders
- Automated Dataset geo-enrichment and preparation
- Data/context-sensitive map canvas and visualization
- Many of the steps involved in the ML pipeline will be made easy with self service tools
  - Auto search for data sets, auto search for existing models and training data sets are some examples
- Data preparation is already migrating from specialist to non specialist domain with the help of self- service tooling
- Same trends will be seen in other parts of the ML pipeline

