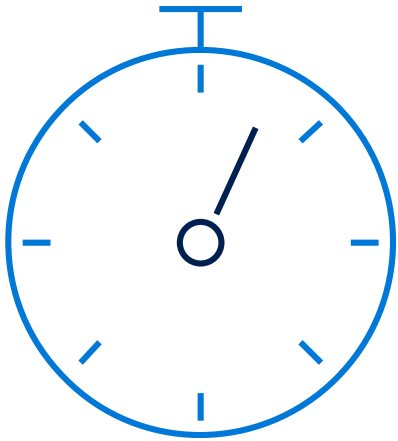




Data Insights and Analytics in Education

Shakil Ahmed, Worldwide Education Sales

The cloud offers limitless computing power



Speed

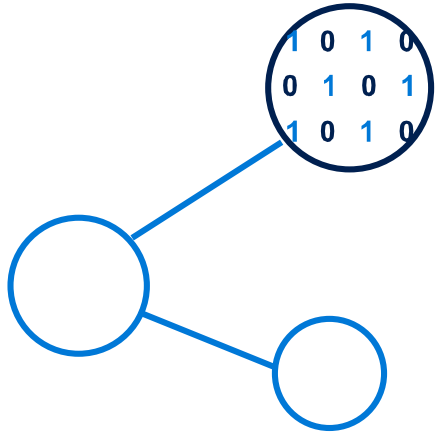


Scale

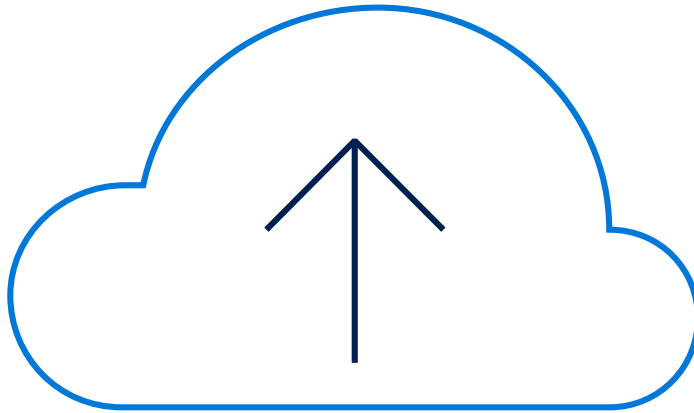


Economics

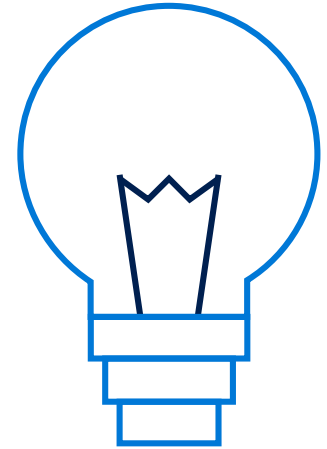
We now face the next disruption – the fourth industrial revolution



Big Data



Cloud



Intelligence

Challenges to unlocking data insights



Lack of skills
and knowledge
59%

Increasing data
complexities and
sources

Integration with
existing tools
41%

Security and
manageability
37%

Complex challenges, diverse stakeholders



Financial

- Shrinking government funds and endowments
- Budget allocation
- Rising student costs and debt



Teaching and learning

- Poor student performance
- Ineffective teaching
- Influx of technology



Recruiting and retention

- Attracting students
- Diversity
- College attainment
- Graduation rates



Facilities and culture

- Food, sports, and health
- Parking, buildings, and equipment
- Safety; bullying
- Security and monitoring



Constituent management

- Faculty and staff
- Student relationships and information
- Parents and alumni

Real-world improvements through data

Heating and A/C optimization

MOOC
completions

Endowments

Graduation rates

Personalized
learning

School and
district
rankings

Parking
optimization

Book store sales

Teacher
effectiveness



Student achievement

Student enrollment and
retention

Bullying prevention

Cafeteria
improvements

Marketing
effectiveness

Enabling at-risk and
disabled students



Equipment reliability



Using predictive analytics tools based on Microsoft cloud technologies, the Tacoma Public School District is providing comprehensive data snapshots of student success indicators and has already helped to **improve graduation rates from 55 to 78 percent.**

Predicting student dropout risks, increasing graduation rates with cloud analytics

- | | |
|-----------------|--|
| Solution | Tacoma Public School District used Microsoft SQL, Power BI, and Azure Machine Learning to create a dashboard showing student performance and graduation predictions to educators |
| Benefits | <ul style="list-style-type: none">○ Boosted graduation rates from 55 to 78 percent○ Changed perception of students' ability to succeed○ Teachers and principals have a full picture of each student's situation based on real data |

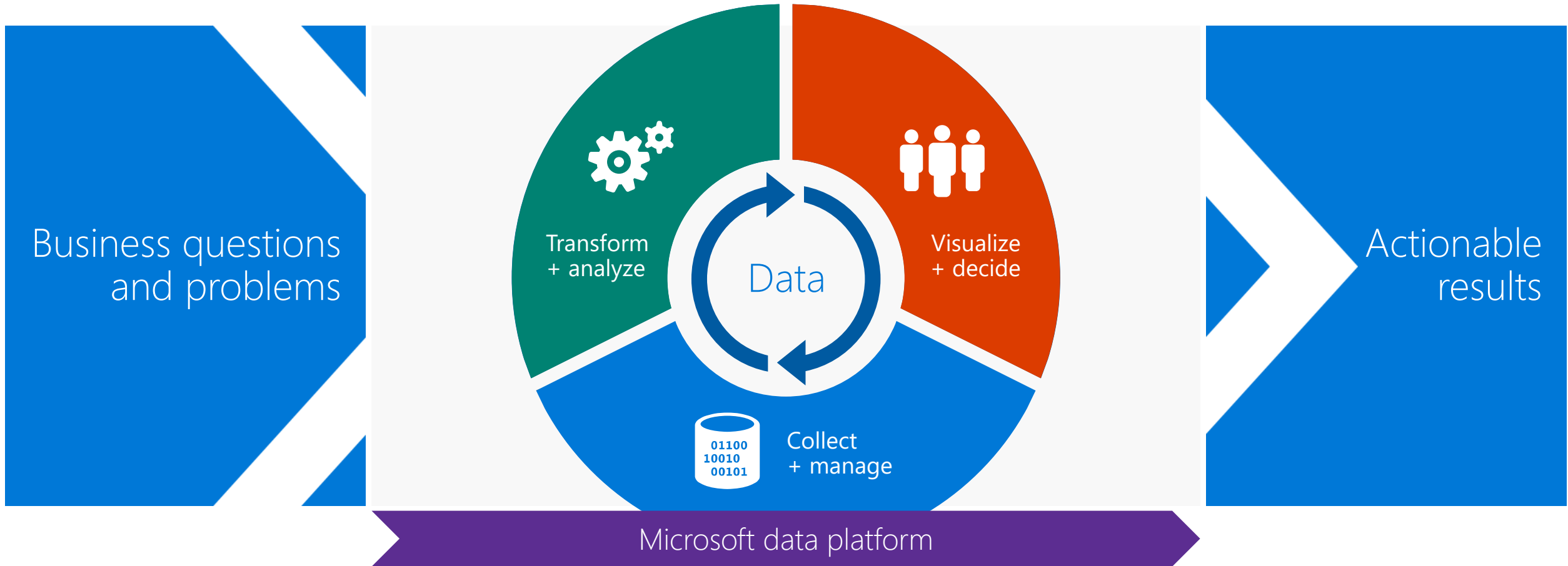


Student Performance Analytics

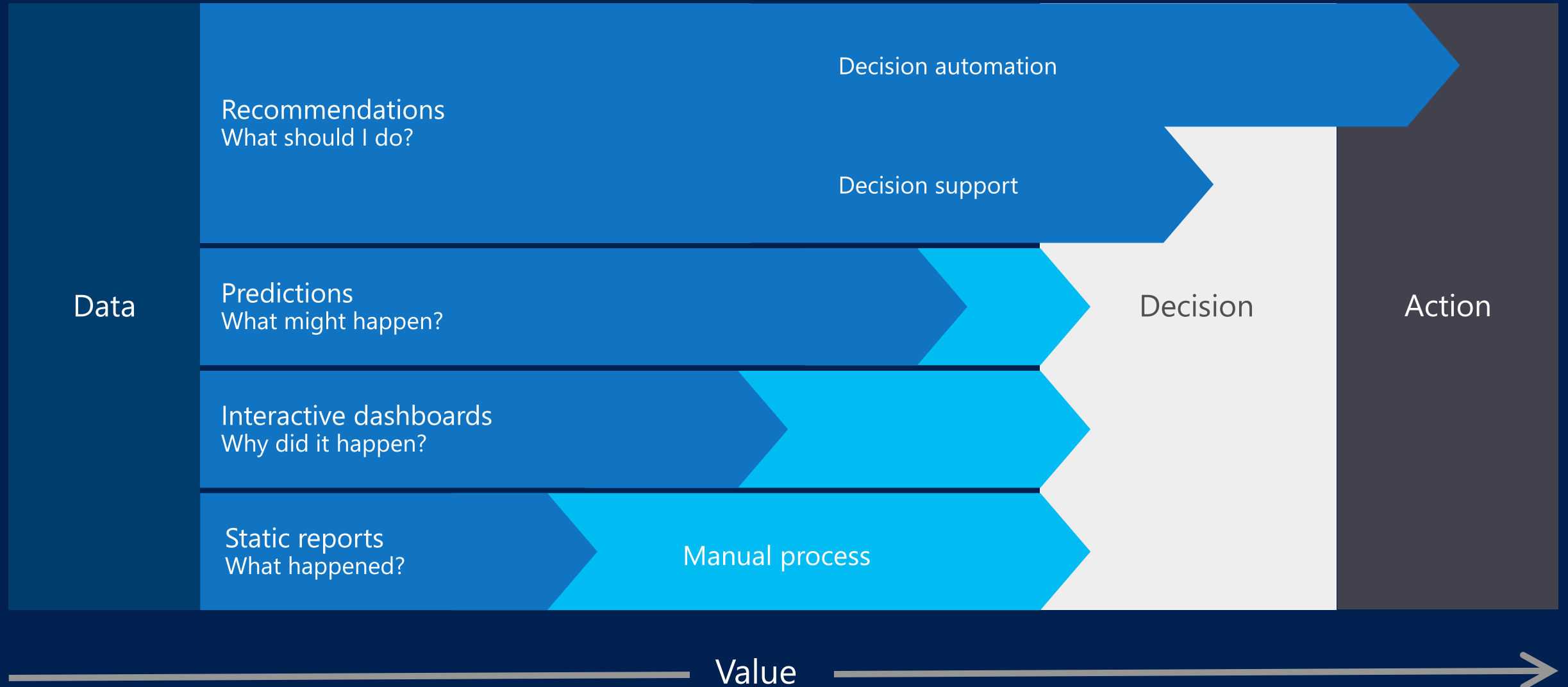
"With Azure Machine Learning, we proved that we have the right tool to get us where we want to go in terms of predicting student success. It's a tool our educators will be able to use to start tackling the problem of student disengagement."

Shaun Taylor
CIO

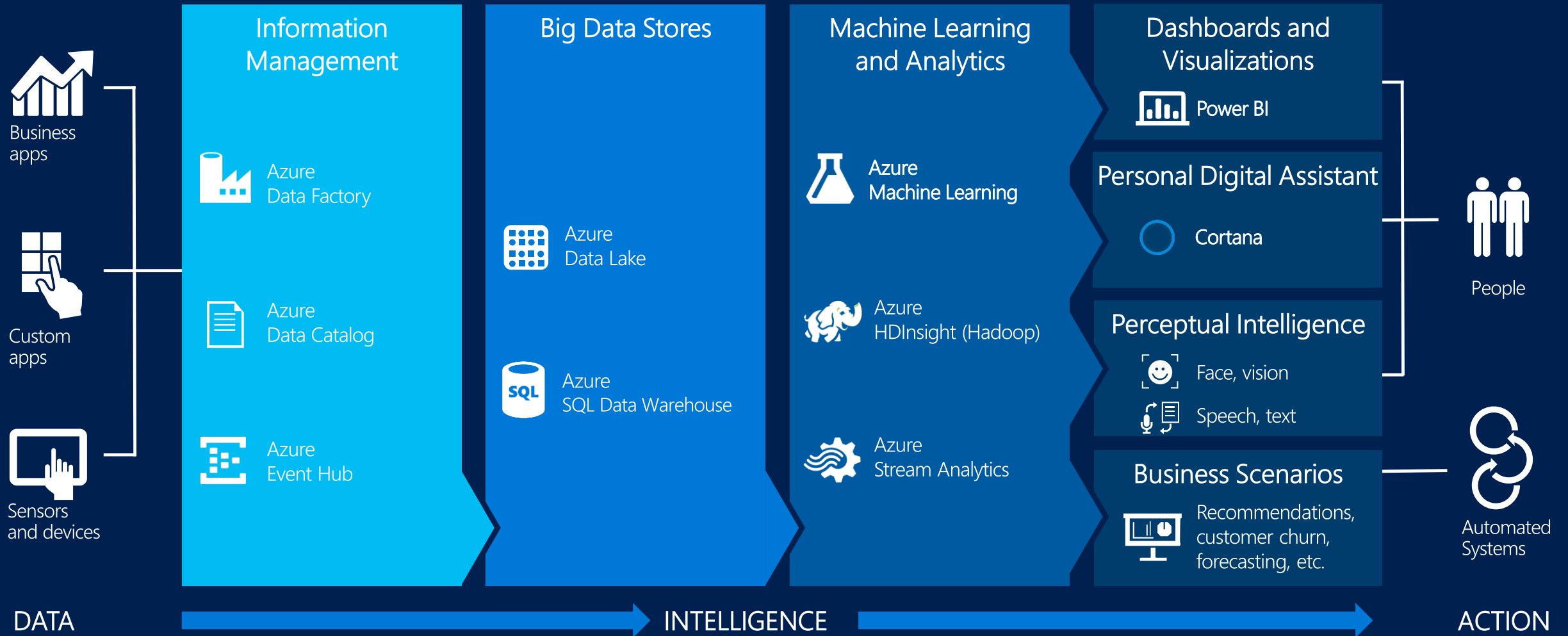
Transform your business with Microsoft's end-to-end data solutions



From data to decisions and actions



Cortana Intelligence Suite: Transform Data to Intelligent Action



Challenges at Derby College



**External inspectors
demanding higher
attainment and
retention**

**Need to Expand &
Increase quality to
meet local Economy
needs**

**No tool or mechanism
to predict likely
outcomes of
applicants**

These predictions are
from the start of the
admission process

**No tool or Mechanism
to predict negative
outcomes and to
allow intervention**

These predictions are
intra-year

bris<4education at Derby College



elastacloud

RAW DATA

Age

Study hours

Ethnicity

Prior attainment

Health problems

Distance from College

Employment type

Learning difficulties

Employment hours

Sex

Visualization website
(soon on Power BI)



PASS/FAIL

PREDICTION

brisk4education

Derby Summary



Likely retention
and achievement



Accurate income
forecasting



88% ACCURACY

10 – 15% of enrollments fail in first 6 weeks
Reduce marketing costs
Funding loss 10% of \$84m



Next Steps for Derby College

FUTURE PREDICTION 1: GEO

Matching Derby
courses with local
workforce demand

FUTURE PREDICTION 2: FACILITIES

Predicting how
facilities affect
learning outcomes



Who is Deltion college?



deltion college ORGANISATIE / WERKEN BIJ / SSC / AGENDA / NIEUWS / CONTACT / MIJN DELTION

jongeren onderwijs
volwassenen onderwijs
bedrijven

Deltion Kieswijzer®
inschrijven

AGENDA
01-06-2015
1 juni 2015 Informatieavond
24-08-2015
24 augustus 2015 Last minute informatieavond
- meer -

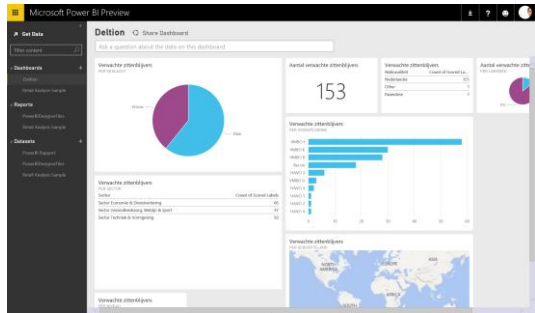
BIJLES TAAL EN REKENEN VOOR INSTROMERS
meer weten >

INFO AVOND
1 JUNI 2015
MELD JE AAN!
Kies voor jezelf

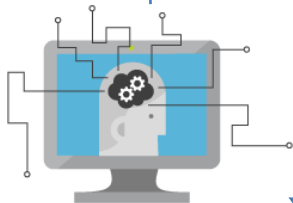
- Based in Zwolle – The Netherlands
 - 17.000 students
 - 1.100 employees
 - State of the art school
-
- They want to help their students during school
 - They have a lot of students leaving their school
 - Around 2.000 per year
 - Lot of failures in the 2nd or 3th year (so less money from the government)
 - The process of registering students is not good
 - No good insights on student performance (too late)



Global solution and Process

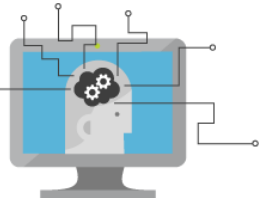


Excel

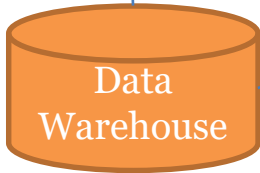


Azure ML

Excel



R



Excel

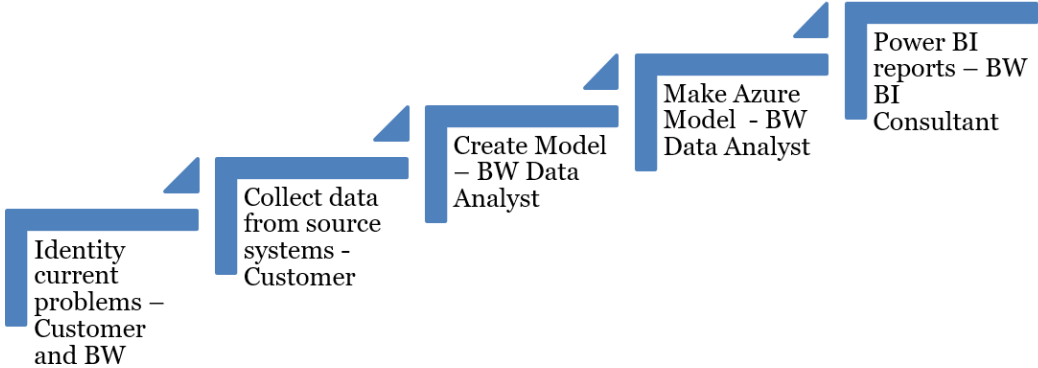
ORACLE®
Old Student Information System

Edu Arte
Student Information System

Excel

Excel

Own Presence /
Absence System





Get Data

Filter content

Dashboards

Deltion

Retail Analysis Sample

Reports

PowerBIDesignerFiles

Retail Analysis Sample

Datasets

PowerBI Rapport

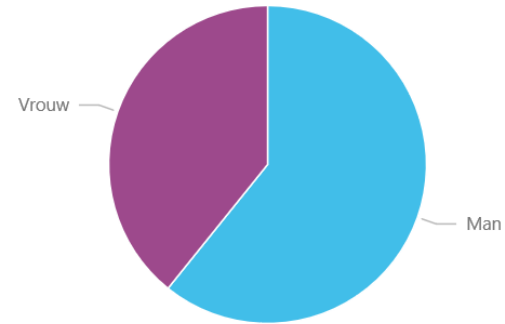
PowerBIDesignerFiles

Retail Analysis Sample

Deltion Share Dashboard

Ask a question about the data on this dashboard

Expected repeaters
PER GENDER



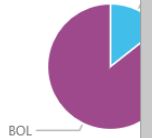
Expected number of repeaters

153

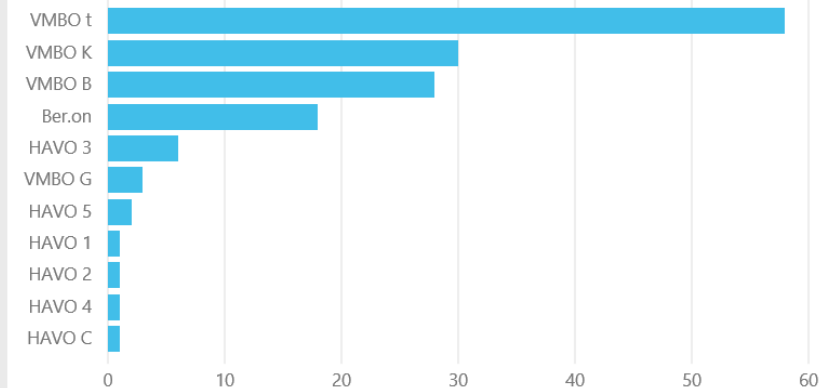
Expected repeaters

Nationaliteit	Count of Scored La...
Nederlandse	151
Other	1
Rwandese	1

Amount of expected r
PER SUBLEVEL



Expected repeaters
PER EDUCATION



Expected repeaters
PER SECTOR

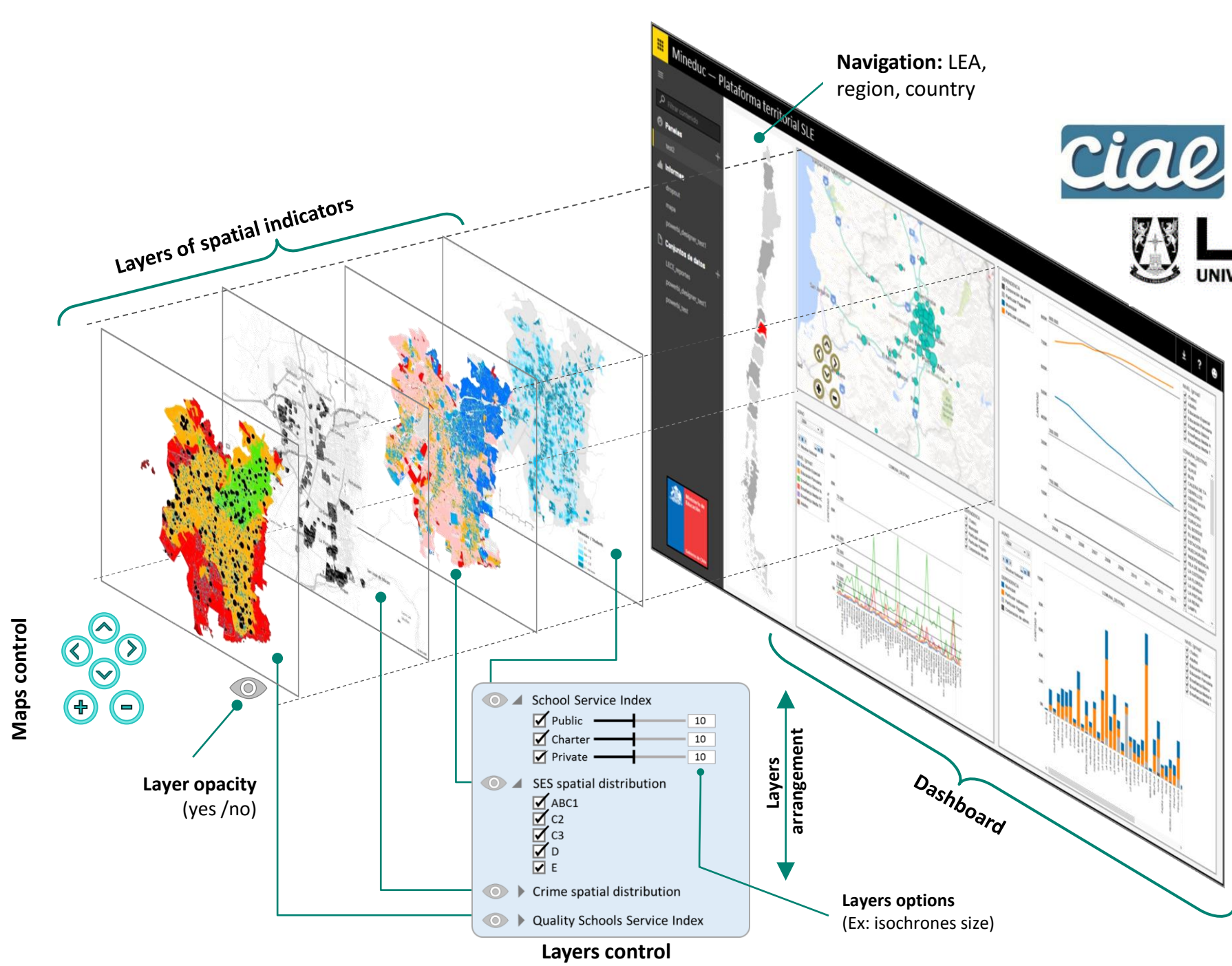
Sector	Count of Scored Labels
Sector Economie & Dienstverlening	66
Sector Gezondheidszorg, Welzijn & Sport	37
Sector Techniek & Vormgeving	50

Expected repeaters
PER BIRTHCOUNTRY



Expected repeaters
PER LEVEL

Supporting educational decision and public policy making using BI and visual analytics



Centro de Investigación Avanzada en Educación
Universidad de Chile



UNIVERSIDAD ADOLFO IBÁÑEZ



FONDEF
Fondo de Fomento al Desarrollo Científico y Tecnológico

Research in Education



Academic Research Use Cases

REMOTE DATA COLLECTION

Aggregate data from widely-separated sensors

ANALYSIS

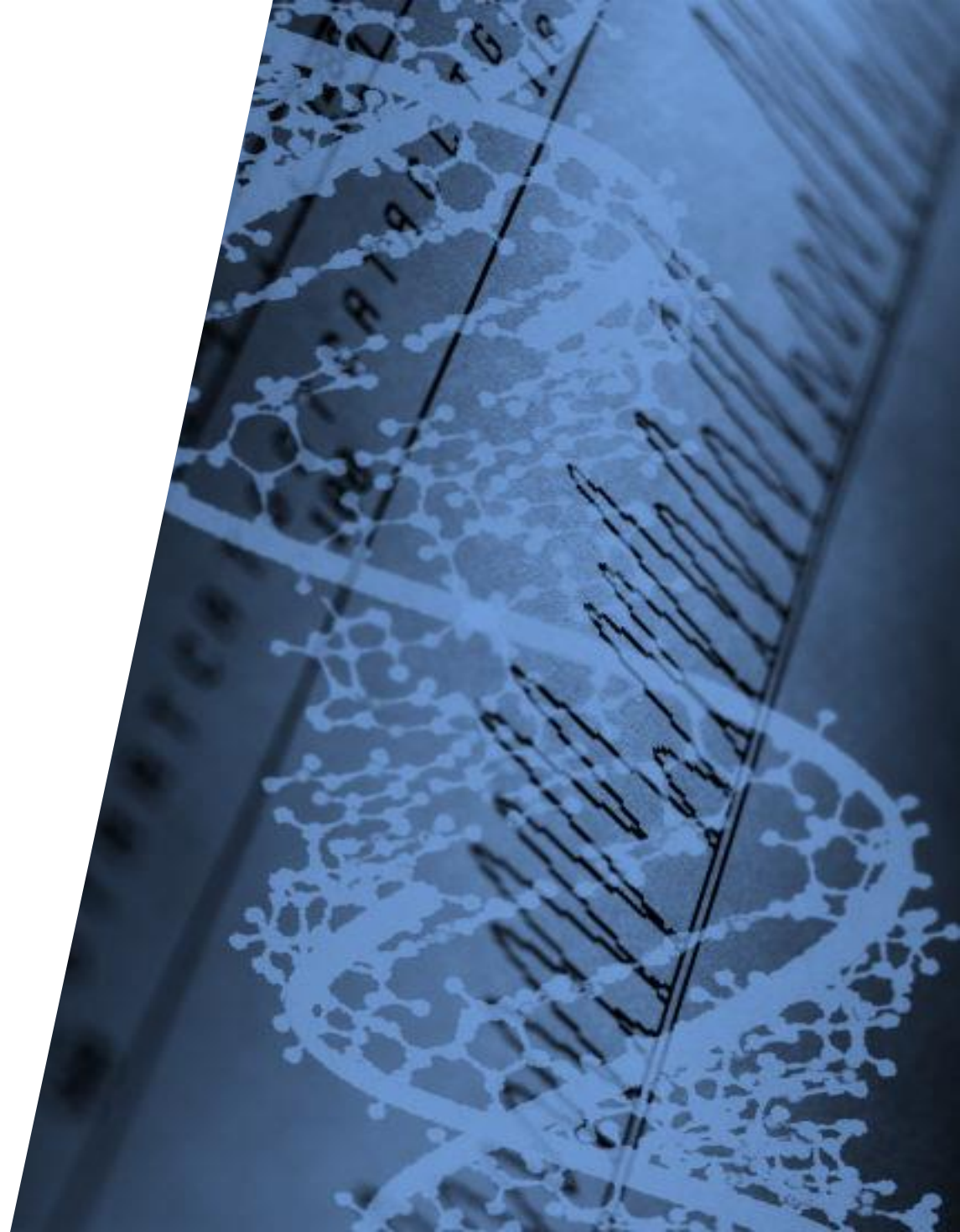
Leverage powerful analysis and machine learning tools

MODELING

Massive compute on demand

SHARING

Share data within and across institutions





IT

Academic Research Value Proposition

Efficient development, testing, and research

OPPORTUNITIES

HIGH PERFORMANCE COMPUTING

HPC machine configurations available

CORTANA INTELLIGENCE SUITE

Collection, analysis, prediction, & display of data

LINUX SUPPORT

We support several varieties of Linux including RedHat

FACULTY



University Transforms Life Sciences Research with Big Data Solution in the Cloud

[case study](#) | [video](#)



Azure HDInsight to store and analyze data

- Save money
- Vastly reduce research times
- Decrease hardware/software setup & maintenance
- Share datasets

"Microsoft Azure is enabling us to keep up with the data deluge in the DNA sequencing space. We're not only analyzing data faster, but analyzing it more intelligently."

Wu Feng
Professor of Computer Science

Carnegie Mellon Sees a Way to Cut Energy Use by 20% with Cloud Machine Learning Solution

[case study](#)



PI system from ISV partner OSIsoft, in combination with Azure Machine Learning to:

- Reduce energy costs by 20%
- Predict future waste and equipment failure

"We immediately began using Azure Machine Learning without having to prepare on-premises software; everything's ready-to-use in the cloud."

Bertrand Lasternas
CMU Researcher

Azure for Research Grants

Accelerate the speed of scientific discovery

Grants open to academic researchers who submit a proposal for using cloud resources to aid their research. The Azure for Research program offers:

- Free access to Azure cloud computing and storage (upon acceptance of proposal)
- Training classes and webinars
- Technical resources and support
- Community discussion on [LinkedIn](#) (Microsoft Azure for Research group) and [Twitter](#) (@Azure4Research/#azureresearch)

