Unified Data System Strategy
Improving Student Achievement in SFUSD through Data Quality, Interoperability, and Governance
Developing students to compete and thrive in the 21st century world

1. CONTENT KNOWLEDGE
   Mastery of the core knowledge, critical thinking skills, and competencies outlined by the Common Core State Standards (CCSS).

2. CAREER AND LIFE SKILLS
   The knowledge, skills, and experience to navigate the “real world” and solve problems that arise in everyday life and in the workplace.

3. GLOBAL, LOCAL, AND DIGITAL IDENTITY
   The ability to navigate and engage in a 21st century global society that is more inclusive and interconnected.

4. LEADERSHIP, EMPATHY, AND COLLABORATION
   Strong interpersonal skills and the ability to positively influence and collaborate with others.

5. CREATIVITY
   The freedom, confidence, and ability to express their unique selves.

6. SENSE OF PURPOSE & SELF
   Our graduates will see themselves as filled with purpose and value.
Digital District Plan: 3 Levers for Transformation

1. Redefine the Classroom Experience
2. Develop Critical Tools & Systems
3. Build Resilient Infrastructure
Mission, Vision, & Strategy
Department of Technology Mission Statement

The SFUSD Department of Technology (DoT) leads SFUSD’s efforts to transform into a digital district to realize Vision 2025 and prepare every student, in every school, for college and career success in the 21st century.

Through strategic partnerships with schools, departments, and the San Francisco community, DoT enables student, educator, and staff success through a coherent technology experience.
We are implementing a comprehensive system to achieve Vision 2025

WE EVALUATED TECHNOLOGY ACROSS SFUSD TO REVAMP A STRATEGY TO ACHIEVE VISION 2025

1. SFUSD STRATEGIC PLAN
   - TRANSFORM LEARNING
   - TRANSFORM LIVES

2. DIGITAL DISTRICT PLAN
   - BUILD RESILIENT INFRASTRUCTURE
   - DEVELOP CRITICAL TOOLS & SYSTEMS
   - REDEFINE CLASSROOM EXPERIENCE

3. VISION 2025
   - SCHOOLS
   - DEPTS
   - STUDENTS
   - FAMILIES
Respond to our “tech debt” to accelerate SFUSD’s transformation into a digital district

circumvent IT
- Collective frustration in departments, schools, and IT
- “Shadow IT Departments” across district

appetite for innovation
- Rapid expansion of access to, and use of, technology has taken place in pockets
- Infrastructure of ongoing support, training, and expertise needed to sustain and fully-embrace growth

disparate data & systems
- Disconnected and competing systems
- Discrepancies around data quality, ownership, validation, security
- Overlaps in functionality create confusion - too many systems
- Ecosystem inhibited effective support and use of data
Communicate strategic focus areas to align the work

- Build a foundation for sustainability
- Target high-leverage areas of need
- Bring coherence across technology efforts
The Catalyst for our Work: Data Ecosystem Assessment
Data ecosystem assessment

Consider the entire data ecosystem
- Data culture
- People and processes
- Organizational structure
- Collaboration and governance
- Support and sustainability

Broad stakeholder outreach:
50+ one-on-one interviews
8 focus groups
(nearly 100 participants - principals, leaders, administrators, teachers)
Current State: SFUSD Data

**APPLICATIONS & DATABASES**
- Distributed across SFUSD
- Siloed decision-making yields siloed architecture
- Inequities across departments
- Users enter the same data into multiple systems
- Different data results from different systems

**TOO MANY APPLICATIONS AND DATABASES**
- Create a growing burden on school personnel
- Overlap in functions confuses users
- Many applications are genuinely **not** user friendly
- Educators are too busy to “just pick it up”
- Limited ongoing support

**INSUFFICIENT LEVEL OF INTEGRATION**

**CURRENT APPLICATIONS ARE VIEWED AS TOO HARD TO USE AND NOT USER-FRIENDLY**
SFUSD’S current state of patchwork data systems leads to added complexities and challenges for our user community.

**CHALLENGES**

**school leaders**
- Data received in multiple formats, through multiple vehicles (online, email, hard-copy)
- Data is not real-time
- Spend valuable time logging into multiple systems

**teachers**
- Spend valuable time logging into multiple systems
- Little data is available, without their involvement in pulling together

**central office**
- Limited ways to aggregate data by cohort in real-time
- No self-service, must request reports from analysts
- Limited tools to measure operational or programmatic performance
- Lack of trust in the data when different systems report different data

**public**
- Publicly available data is often static, updated annually
Unified Data System Strategy
How do we transform data use in SFUSD?

PROBLEM STATEMENT

Data Quality  Data Interoperability  Data Governance
Unified data ecosystem vision

- Design with the **end user** in mind
- Meaningful progress achievable within **three years**
- **Timely, actionable** student data & analytics for school sites
- Improved **data-informed culture**, practices, and capacity to use
- Data is **integrated**, **interoperable**, **coherent**, **accurate**, and available in real-time to support broader education and administration practices
- Clear **data governance** processes & protocols exist and are followed
- **Changes are prioritized** and mutually agreed upon, not ad hoc
- Ability to **integrate and analyze** relationships between datasets
- Ability to integrate **multiple measures**
- Cross-sector and partner **data sharing**
- Ability to store, report, and analyze common data **longitudinally**
- Users are **trained and supported**
Data Maturity Model
Data maturation was catalyzed by assessment work

“emerging” data maturity
- department silos
- scarce and inconsistent training
- ad-hoc governance and privacy by department
- inconsistent quality
- annual KPI tracking
- some connections between applications and data sources
- Point-to-point batch interfaces between tools

CURRENT STATE: MARCH 2016

“optimizing” data maturity
- cross-department cooperation
- targeted training and support for functional use of tools by role
- cross-department governance and privacy policy and procedures
- department-, school-level KPIs tracked periodically
- most applications and data sources integrated
- consolidated tools around an integration architecture
- dashboards introduced

2017-2019 GOAL
1. **Hire staff** in key roles

2. Move from siloed to **centralized & collaborative IT systems** management and decision-making

3. Impose a **1-year moratorium** on new systems to allow systems and governance analysis

4. Analyze and plan **consolidation of applications** around core application suites

5. Improve **training and support** across SFUSD

6. Plan and execute a Year 1 **Quick Win**

7. Create a comprehensive plan for moving to Level 4 **optimized data maturity**
SFUSD transformed its culture of data governance

**ACCOMPLISHMENTS**

**monthly steering committee** to guide data governance cross-functionally

**3 spin-off working groups** established to tackle key challenge areas in SFUSD (quick wins, instructional requirements, data policies and practices)

**common language** around data governance, SFUSD’s maturity, and where we need to go

**current state** of SFUSD’s data maturity is codified in the Assessment Report
We have made progress in the last two years

**ACCOMPLISHMENTS**

**consolidation roadmap**
final draft developed, based on report recommendations; and strategic consolidations are underway

**data definitions**
have been developed for several “calculations” that often conflict across departments

**workflows**
to outline chain of custody for high profile data points (e.g. attendance)

**dashboard prototype**
is in-development and has shown how real-time analytics are dependent on accurate and quality data
Next steps will continue cultural transformation

**NEXT STEPS**

- **finalize roadmap**
  to show departments and schools where we’re going and build buy-in to the plan

- **dashboards and analytics**
  to give end-users access to a tangible product that shows results of data governance work

- **build a data system foundation**
  establish a district operational data store where data is commonly defined and accessed

- **interoperability standards**
  seek partnership to build interoperability standards and web services for data integration across systems

- **student systems integration**
  and continued consolidation of enrollment, special education, gradebook, and other systems into Synergy SIS
System consolidation will be foundational to cultural transformation for SFUSD

To achieve an accurate, secure, accessible, and unified data ecosystem

CURRENT STATE: MARCH 2016

FUTURE STATE: 2017-2019 GOAL
Data Governance + Technology Governance
Governance & cross-functional teams guide technology efforts and build coherence across SFUSD

**Digital District Steering Committee:** Cross-functional team of district leaders helps guide Digital District Plan

**Digital District Alliance Working Group:** Cross-functional team of district staff refining a prototype for how SFUSD initiates, plans, executes, and sunsets technology

**Data Governance:** Brings coherence to data use and protocols across departments; currently involved in requirements gathering for data warehouse
Launched a PMO to manage the SFUSD technology portfolio

- Establish consistent project management tools and methodologies
- Develop common practices for successful project implementation aligned to Digital District Plan Goals
- Intake new project requests
- Facilitate digital district project prioritization
- Manage the portfolio of technology projects (140+) across SFUSD
- Build PM capacity across DoT & SFUSD

Required Components for Project Implementation

- Cross-functional design and planning
- Sponsorship
- Project Manager
- Subject Matter Experts (SMEs)
- Training
- Support
- Communications
- Infrastructure/Capacity/does not create more “tech debt”
- Ongoing Sustainability Plan
Carryover + New Projects as of 3/22/17

- Dreambox
- Digital Backpack
- Student Data Privacy
- PL & BL
- 1:1 Digital Promise
- Salesforce-Math/CS
- LMS

- Imagine Learning
- Laptops 4 Educators
- Device Mgmt
- DoT/C&I integration
- New Tech @ 3 MS
- Online Credit Recovery

- Read 180
- Assistive Tech Goalbook
- Asset Mgmt
- Google
- Digital Citizenship
- SNS System Consolidation

- Literacy Online Tool
- KReso
- Single Sign On
- Bond-Student Devices
- Online Registration
- Online Credit Recovery
- SIS Re-implementation

- KReso
- Single Sign On
- OCOF Inventory
- CCR Platform
- LEAD Dashboard
- EIS Upgrade

- Student Data Privacy
- Device Mgmt
- Digital Citizenship
- Online Credit Recovery

- Disaster Recovery
- DoT Human Capital
- Cybersecurity
- LEAD Dashboard
- CB- School Discovery

- Assistive Tech Goalbook
- Asset Mgmt
- Digital Citizenship
- Online Credit Recovery

- Online Credit Recovery
- Bond-Infrastructure
- SFUSD site & portals

- Will be completed 2017/18 = Outline in red

SAN FRANCISCO UNIFIED SCHOOL DISTRICT

[Image of San Francisco Unified School District logo]
FY18 digital district priorities are aligned to Vision 2025

**foundation**
- Data Governance
- System Consolidation
- SFUSD Website & Portal
- Bond: Infrastructure
- Cybersecurity
- Disaster Recovery
- DoT/Technology Human Capital

**high leverage**
- Employee Information System
- Bond: Student access
- Asset Management

**coherence**
- Gradebook for All
- Learning Management System (online PD)
- Assistive Technology/ UDL
- Digital Backpack
- Student Data Privacy
- Personalized & Blended Learning
- Digital Citizenship
- Online Credit Recovery
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Data Maturity Model
Quick Start
Improvement requires change

"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change." - Darwin
Change requires maturity growth over time
Levels of Data Maturity

- **Initial**
  - Ad hoc, lack of process, unintegrated

- **Emerging**
  - Siloed, varied processes, point interfaces

- **Integrated**
  - Cooperative, governance, enterprise architecture

- **Optimizing**
  - Collaborative, continuous improvement, data-driven

- **Responsive**
  - Cross-enterprise, proactive, predictive, data-centric
Facets of the Data Maturity Model

- Leadership
- Training & Support
- Governance, Quality, Privacy
- Accountability, Metrics
- Integration
- Architecture
Data Maturity Model

**Level 1: Initial**
- **Leadership**: Ad hoc.
- **Training & Support**: No systematic training and support.
- **Governance/Quality/Privacy**: Recognized need/concern. Quality is unknown.
- **Accountability/Metrics**: State/federal accountability metrics only.
- **Integration**: Most tools stand alone and unconnected.
- **Architecture**: Ad hoc, no enterprise architecture.

**Level 2: Emerging**
- **Leadership**: Ad hoc.
- **Training & Support**: Training is scarce & inconsistent.
- **Governance/Quality/Privacy**: Ad-hoc governance & privacy in department silos. Quality is inconsistent.
- **Accountability/Metrics**: Additional organizational KPIs tracked annually.
- **Integration**: Some connections between applications and data sources.
- **Architecture**: Ad hoc, no enterprise architecture.

**Level 3: Integrated**
- **Leadership**: Department silos.
- **Training & Support**: Cross-department cooperation.
- **Governance/Quality/Privacy**: Cross-department governance & privacy policy & procedures.
- **Accountability/Metrics**: Additional departmental/school-level KPIs developed & tracked periodically.
- **Integration**: Most applications and data sources integrated.
- **Architecture**: Point-to-point batch interfaces between tools.

**Level 4: Optimizing**
- **Leadership**: Cross-department cooperation.
- **Training & Support**: Targeted training & support for functional use of tools based on user role.
- **Governance/Quality/Privacy**: Cross-department governance & privacy policy & procedures. Quality & privacy checks built into systems.
- **Accountability/Metrics**: All KPIs tracked in real-time to inform & drive continuous improvement.
- **Integration**: Most applications and data sources integrated.
- **Architecture**: Consolidated tools around an integration architecture. Dashboards introduced.

**Level 5: Responsive**
- **Leadership**: Enterprise collaboration.
- **Training & Support**: Training & support is on-demand, situational, & cross-enterprise.
- **Governance/Quality/Privacy**: Cross-enterprise governance, quality & privacy standards, policy & procedures.
- **Accountability/Metrics**: Cross-enterprise KPIs tracked in real-time to optimize supports for and impact on student outcomes.
- **Integration**: Real-time, enterprise integration.
- **Architecture**: Data warehouse supports real-time predictive and prescriptive analytics.
Data Maturity Model
Moving from Level 2 to 3 is the biggest challenge
Data Maturity Model
Crossing the chasm requires addressing all facets of maturity

Leadership
Training & Support
Governance, Quality, Privacy
Accountability, Metrics
Integration
Architecture
Data Maturity Model
Reaching level 3 enables a new level of success

Leadership – cross department collaboration
Training & Support – data training by role
Governance, Quality, Privacy – managed across departments
Accountability, Metrics – KPIs drive management
Integration – comprehensive integration
Architecture – enterprise integration architecture
Self Assessment Exercise

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- **Accountability/Metrics:** Real-time, enterprise integration.
- **Integration:** Consolidated tools around an integration architecture. Dashboards introduced.
- **Architecture:** Central data warehouse feeds data marts and analytics.

**LEVEL 5: Responsive**
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- **Training & Support:** Cross-enterprise training & support in real-time to optimize supports for and impact on student outcomes.
- **Governance/Quality/Privacy:** Cross-enterprise KPIs tracked in real-time to optimize supports for and impact on student outcomes.
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