

Data Overload – Education and Performance Measurement

College Changes Everything
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MISSION
MEASUREMENT



Education megatrends

Education Reform

- Common Standards & Assessments
- Advocacy for particular models
- Postsecondary success

Focus on Data

- Formative assessments enabled by technology
- Longitudinal data systems
- Measures of teacher effectiveness

Stakeholder Landscape

- Large funders forcing focus on particular solutions
- Corporate focus on workforce development
- Expanded tent of education stakeholders

Budgets and Spending

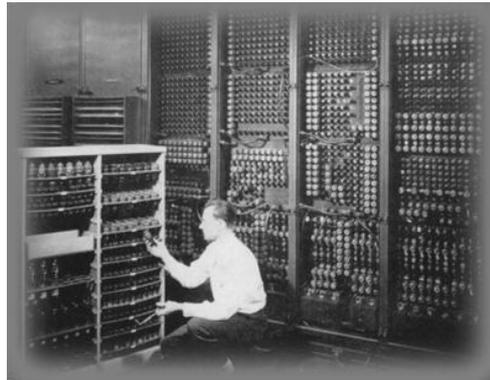
- RTTT, i3, College Access Challenge Grants
- Limited state and local education budgets
- Private philanthropy

Three education data challenges

#1 Metrics Dilution –
'the lukewarm tea'
problem



#2 System Limits Force
Focus on Lower
Value Outcomes



#3 Chasm Between Those
Who Need Data and
Those Who Have it



What do we want to know about students we serve?



Students ready to transition to college who are...

- Academically prepared for rigorous coursework
- Leaders who are ready to engage others to lead
- Advocates for themselves and for others
- Ready to lead fiscally and socially responsible lives
- Prepared to navigate the challenges of college
- Supported by a variety of networks
- Confident that their college of choice is a good fit

Exploring alternative approaches to measurement

5 Essentials Overall

Explore Performance

View current performance

Compare

Compare results

See Trends

View & compare results over time

Downloads

Download reports & visualizations



Sample Elementary is moderately organized for improvement

Sample Elementary's overall performance is based on its strength in each individual essential:

5E Overall: Net = 0, Moderately organized

- Instructional Leadership (average)
- Professional Capacity (average)
- Family & Community Ties (strong)
- Learning Climate (needs support)
- Ambitious Instruction (average)



Net 3-5 Needs Support	Net 1-2 Needs Support	Net 0 Average	Net 1-2 Strong	Net 3-5 Strong
Not Yet	Partial	Moderate	Organized	Well Organized



Sample CPS Elementary School Overall Performance on the 5 Essentials



Exploring alternative approaches to measurement

What are these results based on?

This school's overall performance is based on the 5 Essentials shown below. Click the > to learn more about each Essential and its underlying concepts (measures).

Essential	Essential Performance
 <p>Instructional Leadership In schools with strong Instructional Leadership, people, programs, and resources are focused on a vision for sustained improvement.</p>	 <p>Average ></p>
 <p>Professional Capacity In schools with strong Professional Capacity, adults work together as a community to promote professional growth and create an atmosphere of collaboration.</p>	 <p>Average ></p>
 <p>Family and Community Ties In schools with strong Family and Community Ties, there are strong relationships with students' families and the surrounding community.</p>	 <p>Strong ></p>
 <p>Learning Climate In schools with a strong Learning Climate, students feel safe and teachers expect students to perform their best.</p>	 <p>Needs Support ></p>
 <p>Ambitious Instruction In schools with strong Ambitious Instruction, instruction is clear, well-structured, and is conducive to building and applying knowledge.</p>	 <p>Average ></p>

Exploring alternative approaches to measurement

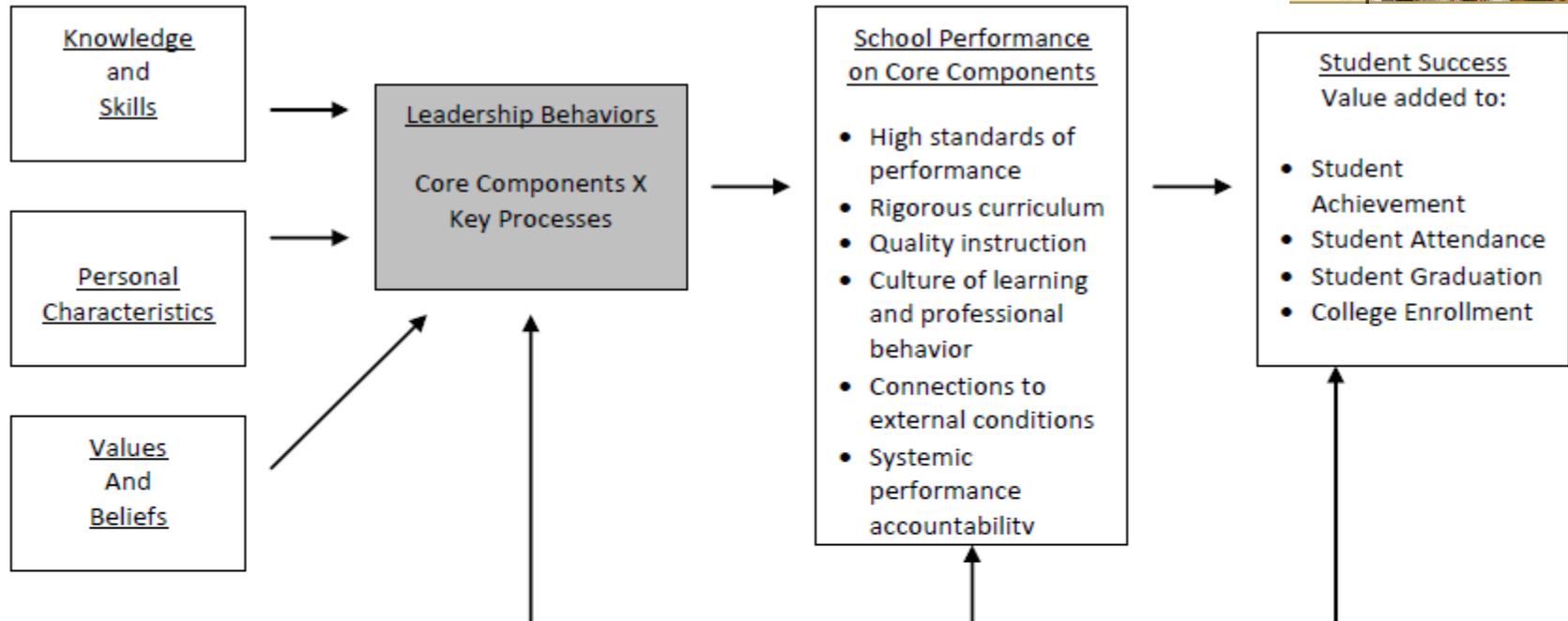
GALLUP® Student Poll

Measuring the Hope, Engagement, and Wellbeing of America's Students

The conversation about the future of American youth starts with a shared understanding of what is right with our students, rather than what is wrong. Through a review of social science and educational research, Gallup researchers chose three variables (hope, engagement, and wellbeing) as the targets of the Gallup Student Poll. These three items met the following five criteria: (1) they can be reliably measured, (2) they have a meaningful relationship with or impact on educational outcomes, (3) they are malleable and can be enhanced through deliberate action, (4) they are not measured directly by another large-scale survey or testing program, and (5) they are not associated with income status. Here are the fundamental findings that are incorporated into the Gallup Student Poll project.

- **Hope** — the ideas and energy we have for the future. Hope drives attendance, credits earned, and GPA of high school students. Hope predicts GPA and retention in college, and hope scores are more robust predictors of college success than are high school GPA, SAT, and ACT scores.
- **Engagement** — the involvement in and enthusiasm for school. Engagement distinguishes between high-performing and low-performing schools.
- **Wellbeing** — how we think about and experience our lives. Wellbeing tells us how our students are doing today and predicts their success in the future. High school freshmen with high wellbeing earn more credits with a higher GPA than peers with low wellbeing.

Exploring alternative approaches to measurement



Context that might have bearing on leadership evaluation:

- Amount of leadership experience
- Length of time of current leadership in the school
- Student body composition
- Staff composition at beginning of leadership team appointment
- Level of schooling (elementary, middle, high school)
- Urban, suburban, rural

Contact information

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City Colleges of Chicago Business Intelligence Initiatives

How metrics definition and data governance will mature CCC's decision-making processes

Monday, July 16, 2012



To help our students meet the demands of a changing world, we must focus on four critical goals

Reinvention Goals

-  Increase number of students earning college credentials of economic value¹
-  Increase rate of transfer to bachelor's degree programs following CCC graduation
-  Drastically improve outcomes for students requiring remediation
-  Increase number and share of ABE/GED/ESL² students who advance to and succeed in college-level courses

Reinvention Vision

Drive greater degree attainment, job placement, and career advancement

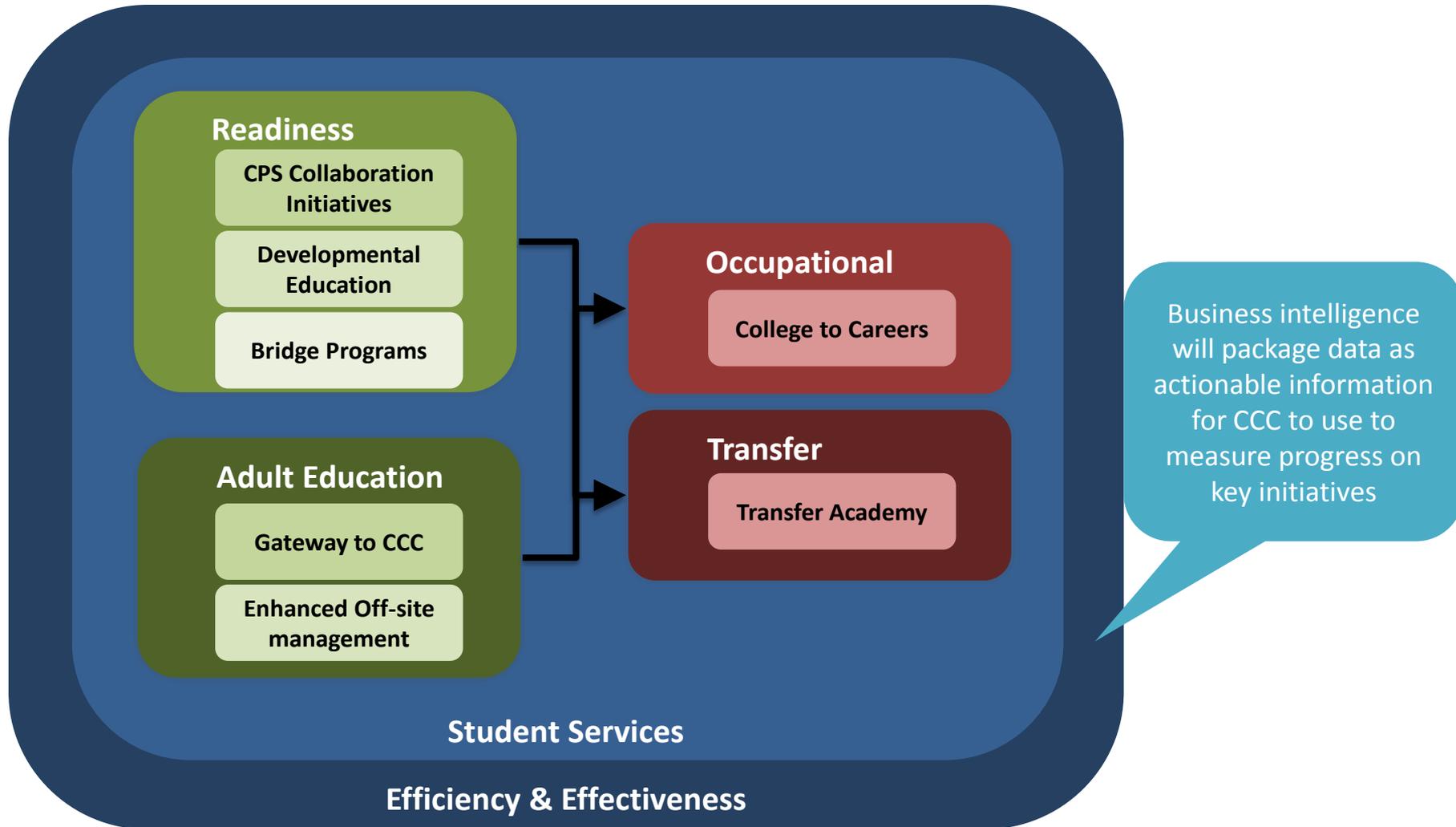
Ensure student success

Become an economic engine for the City of Chicago

¹Since there are economic (as well as social and personal) returns to a college credential and since higher level credentials have higher value, a credential of "economic value" is one that: a) Prepares students to succeed at the next level of education (including maximizing the number of credits that transfer where applicable), whether that be the associate degree program (for certificates) or bachelor's degree programs, thereby increasing their potential lifetime earnings; b) Enables career and technical education program students to advance in the labor market either by moving up in their current job or securing a better job.

²ABE is Adult Basic Education, courses are for students testing at the 1st through 8th grade levels, GED is General Educational Development for students to prepare for high school equivalency, ESL is English as a Second Language, courses provide instruction for non-native English speakers .

Reinvention employs a portfolio framework to align initiatives to the four goals; data supports project selection and tracking project success



Parallel workstreams are helping CCC get a handle on its data and transform it into actionable information

1

Metrics definition

- The City Colleges of Chicago established a **KPI Committee** to drive to consensus-driven common measures for institutional success.
- College executives embedded these KPI's into **annual plans** as goals on which the Chancellor will hold progress accountable.
- Metrics will come from **additional sources** as well.

2

Data management

A *project team* was established to tackle three data areas

- **Data dictionary** compilation, beginning with terms requiring definition in order to fulfill tracking metrics.
- **Data use rights** strategy and implementation
- **Data governance** methods and incident resolution processes

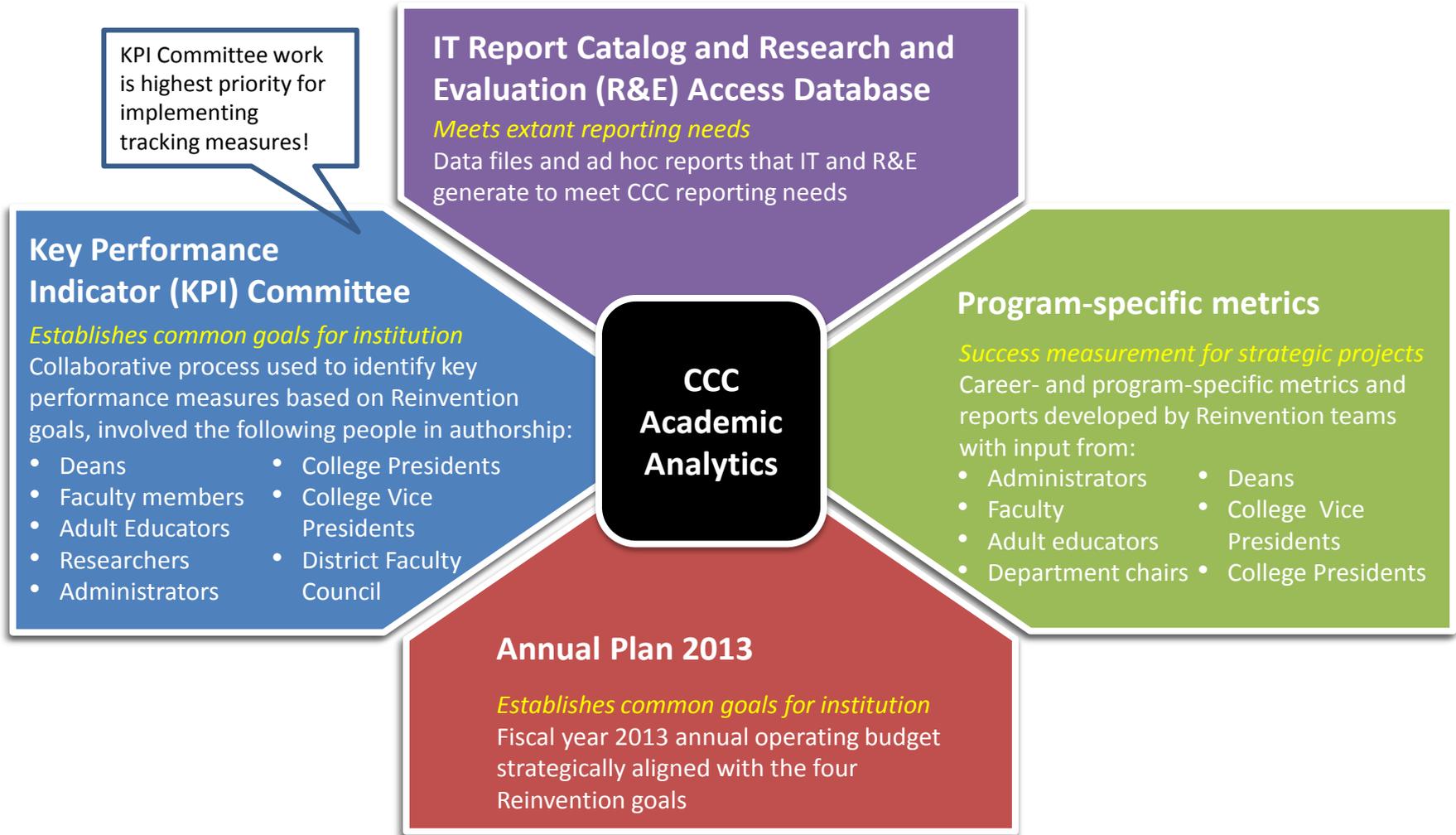
3

Business Intelligence

Put an RFP out-to-bid for a comprehensive data warehouse and business intelligence solution

- Pre-built **data warehouse** preferred
- **Extract, Transform, Load software**
- Presentation layer requirements, including **scorecards** and strategy mapping
- Encompasses **professional services**, including assistance in data cleansing

CCC metrics have been developed with input from a diverse group of stakeholders, starting with a focus on student success metrics



We created a matrix to unpack what we need to track for key metrics

Metric Attributes

- **REI Goal**
- Owner (CCC Department)
- Category
 - Retention
 - Graduation, etc.
- **Metric Definitions**
- Operational Definition - expressed as a rate or count
- Data Fields – Source, State...
- Leading Indicator
- **Dimensions (or variables)**
 - Location
 - Time
 - Demography
 - Instructional Area (etc.)

Metric	REI Goal	Owner	Term(s) to Define	Definition(s)
Faculty Characteristics	4	Adult Education	Adult Educator, Demography, Subject, Classification	Adult Education program faculty (Adult Educators) by demography (age, gender, race/ethnicity, degree held); subject(s) approved to teach; teaching status (active or inactive); and teaching (Adult Educator, substitute)
Term-to-term Persistence	4	Adult Education	Enrolled, Persistence, Adult Ed Program, Adult Ed Course, Census Date, College, NRS Level	Number and percentage of CCC students enrolled (FTE & Headcount for students that register at least once within the first 3 class meetings) in Adult Ed courses at census date (of record for enrollment for State reimbursement) and who are retained in the subsequent term by program, by college, and by NRS level (Beginning ABE Literacy, Beginning Basic Education, Intermediate Basic Education, High Intermediate Basic Education, Low Adult Secondary Education, Beginning ESL Literacy, Low Beginning ESL, High Beginning ESL, Low Intermediate ESL, Advanced ESL).
Withdrawal Status	4	Adult Education	Course, Census Date, End-of-Term, Adult Ed Program, NRS Level	Number and percentage of CCC students who registered for an Adult Ed course and dropped/Initiated Withdrawal --WTH, WTHx, WTHa--; Administrative Withdrawal -- ADW, No-show W...
Within Term Retention	4	Adult Education	CCC student, Adult Ed Course, Enrolled, Census Date, End-of-Term, Adult Ed Program, NRS Level	Number and percentage of CCC students enrolled (FTE & Headcount for students that register at least once within the first 3 class meetings) in Adult Ed courses (credit and non-credit) that are retained in their courses at the end of a term by program and NRS level (Beginning Basic Education, Low Intermediate Basic Education, High Intermediate Basic Education, Secondary Education, High Adult Secondary Education, Beginning ESL Literacy, Low Beginning ESL, Low Intermediate ESL, High Intermediate ESL, Advanced ESL).
Persistence (per CCC definition)	4	Adult Education	Adult Ed Student, Adult Ed Course, Persistence, Attendance Hours, Enrollment Hours	The total number of attendance hours for all Adult Ed students divided by the total number of hours offered.
Level gains	4	Adult Education	Adult Ed Student, Adult Ed Exams, NRS	Number and percentage of CCC students enrolled (FTE & Headcount for students that register...

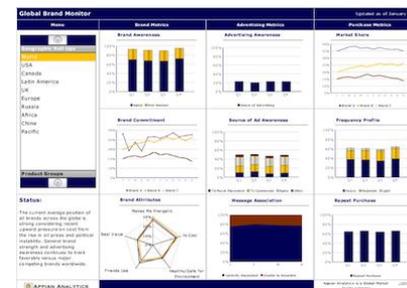
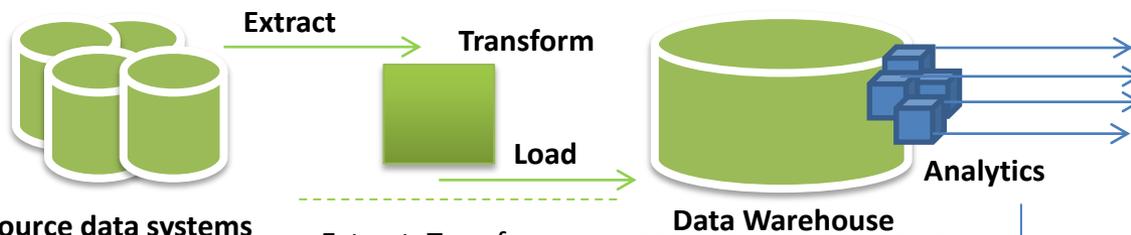
Dimension Hierarchies (examples)

- Location: College → Satellite and Off-Site
- Instructional Area: Adult Ed → Special Initiative → Gateway

Data work thus far is split into three key areas...

	Data Ownership	Data Dictionary	Data use
Recommendation	<p><u>Institute four major roles:</u></p> <ol style="list-style-type: none"> Data Owners – Final arbiters on decisions related to specific data domains Data Stewards – Support decision-making Data Programmers – Implement data strategy Data Analysts – Assist data programmers 	<p>Establish CCC data dictionary, including:</p> <ul style="list-style-type: none"> Terms Definitions Definition Sources Rationales Data Sources Data Fields 	<p>Create, outline and operationalize district-wide data controls that</p> <ol style="list-style-type: none"> Evince the data confidentiality / availability trade-off Provide a unified set of permissions and terms for data usage
Rationale	<ul style="list-style-type: none"> Project team can serve as prototype for established data governance committee Provides mechanism for data oversight and incident identification and resolution 	<ul style="list-style-type: none"> Ensure map-back of metrics elements to data-level Assist in data warehouse setup 	<ul style="list-style-type: none"> Distinctly define data confidentiality requirements Provide users with clear reasoning around extant ethics policies governing data use
Work-to-date	<ul style="list-style-type: none"> ✓ Established ownership with key leadership at City Colleges ✓ Received buy-in from executive level ✓ Convened initial data governance project meetings and established subgroups 	<ul style="list-style-type: none"> ✓ Collected metrics, with operational definitions ✓ Placed definitions of required terms into working data dictionary 	<ul style="list-style-type: none"> ✓ Broke assignments around policy review and requirements definition. Will synthesize research to revise data use agreement and consistently implement permissions

Good business intelligence is really about what is behind the dashboard curtain...



Source data systems

- Our primary source systems are, right now, PeopleSoft-based
- Future data sources will include GradesFirst, Blackboard, potentially a performance management system, and others
- Source systems will also federate with outside systems, potentially, for more seamless data integration with city agencies

- Extract, Transform, Load (ETL) functions bring source data into the data warehouse – or, for solutions without a warehouse – directly into an analytics metadata layer
- Transforms are the key function, moving data from one model to another while validating for data quality

Data Warehouse

- By putting data in one space, “data-out” complexity, cost and risk is reduced
- Benefits are achieved by segregating operations data from reporting / analysis data, and by bringing all data to one place for running reports against one version of the truth

Analytics

- Online analytical processing (OLAP) allows for storing frequently viewed data in a ready to retrieve format via data cubes, which allows for visualizing data from multiple perspectives (think pivot tables).

Dashboards and reports

- Dashboards
- E-mail alerts
- Scorecards
- Strategy maps
- GIS
- Predictive modeling

Adoption of data-driven decision-making at CCC requires the most work at the faculty and student service levels

✓ Executive Level	Chancellor championship of initiative: holding Vice Chancellors and Presidents accountable to KPI's in annual plans assures buy-in from the top
✓ Administrator Level	Executive accountability of data-based evidence of meeting targets for KPI's imbues Deans and Executive Directors with a focus on data-driven outcomes

Top-down data evangelism – driven by the Office of Strategy and Institutional Intelligence and its Reinvention effort – will ensure focus on data-based outcomes imbues culture, driving a large portion of decision-making at the student service and faculty levels, where CCC interacts with students



Student Service	Faculty
Staff are being trained in using data housed in an early alert tool, providing at-risk indicator info for individual students, which in-turn determines advising and tutoring appointment scheduling	Through the development of a learning analytics, faculty will have access to “data and models to predict student progress and performance, and the ability to act on that information.” (Educause, 2011). This will help with two objectives: <ul style="list-style-type: none"> • Assurance that students receive proper interventions to promote retention, persistence, success, and completion. • Promotion of informed, innovate, data-driven curriculum and student service decisions that best meet the needs of students and facilitate their success.

Contact Information – Questions and Comments



**Questions?
Comments?**

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