

Introduction

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WSD – Western Suburban District
CTO – Chief Technology Officer
CRD – Committee on Research Data
IR – Institutional Research
IT – Information Technology
SIS – Student Information System

Welcome

This story of two community colleges tells how they have dealt with the demands for data that state-mandated accountability requires. The story is based on research conducted at a large community college district in California.

On the surface, the story might seem straightforward: accountability mandates led to the expansion of the Institutional Research Department, causing the schools to try to replace an outdated Student Information System in order to improve the district's overall access to data.

However, the underlying story is more complicated. If it had a headline, it might be one of these:

Why Can't We Get the Data We Need?

A New System? What System?

Is Access to Data Really That Important?

This story looks at the community college district on multiple levels, weaving together anecdotes and experiences along with the underlying themes and tensions.

It is an attempt to look at one component of the educational environment—the one that links state policy-makers to the schools they oversee—tracing the drive toward accountability through to its consequences in practice.

Why read this story?

This story takes about 15 minutes to read. You will find it worth your time if you are:

CURIOS ABOUT: educational systems, California community colleges, accountability mandates, college administration, data and information systems

GETTING ORIENTED TO: accountability pressures and demands for data, educational settings, college administration, tensions between internal and external data needs

LOOKING FOR EXAMPLES OF: organization politics, research culture, hiring issues, technology implementation, barriers to data, information politics

SEEKING THE REASONS BEHIND: implementation delays, concerns over centralization, ambivalence toward technology, need for data validation, social and organizational processes surrounding information

ASSESSING THE VALUE OF: accountability mandates, leadership continuity, organization culture

RESEARCHING: accountability trends in higher education, data demands in California community colleges, technology implementation difficulties, research culture, technology culture

You can read through the story page by page, or jump to particular events on the timeline at the left. Or you can view a summary of [Themes](#), skip ahead to the [Conclusion](#) or learn about the [Story Approach](#).

There are a few acronyms in the story, which are defined in the lower left corner of each page.

*This story is based on research conducted by team members from the **Institute for the Study of Knowledge Management in Education (ISKME)** and **Columbia University**. **Lisa Petrides**, **Lilly Nguyen**, and **Elizabeth Doty** collaborated on the writing and editing of this document. Digital story design by **WorkLore**.*

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Western Suburban District

In early 1998, there were two community colleges in a California suburban district, with over 40,000 students enrolled. As with most community colleges at this time, Western Suburban District's (WSD) primary concern was to maximize student enrollment and success. Members of WSD also demonstrated a strong culture of inquiry, as seen by their tendency to actively seek out data to better inform and guide their decision-making.

Data Barriers

Despite this strong culture of inquiry, WSD's administrators and faculty found it difficult to obtain the data they sought. Requests for data were often met with substantial barriers: antiquated and fragmented systems, data errors, outdated data, and conflicting data sets.

Despite the efforts of WSD's Institutional Research (IR) and Information Technology (IT) Departments to resolve issues of access to data contained in antiquated legacy systems, faculty and administrators still could not get data that was timely, reliable, and accurate enough to be useful. As a result, the district convened the Committee on Research Data (CRD) to investigate and recommend longer term solutions.

"[The data] go into the big system in the sky.... It comes back as something totally unrecognizable."

— Staff Member

Accountability Mandates Magnify Data Problems

CRD had been meeting for several months when, in late 1998, state-mandated accountability standards based on student performance outcomes were put in place. In the past, districts had been funded based on the number of student enrollments each semester. However, the purpose of this new accountability mandate was to gradually shift the ways in which districts were funded to a system based on the percentage of students who met certain performance indicators.

These new mandates clearly reflected a nationwide shift toward accountability in education, which, in turn, brought a heightened sense of urgency. Policy-makers everywhere were looking for measurable results from education investments. The districts were encouraged to use data to determine how they would go about improving performance, although they were not necessarily required on a programmatic level to make better use of internal data to meet the accountability requirements.

Organizational Restructuring & Systems Change

This newfound sense of urgency drove the CRD to two pivotal recommendations:

- 1) Restructure and strengthen the IR Department, centralizing it at the district level, and
- 2) Replace the Student Information System (SIS) with a new system that would allow the district to store data in a single location, and also allow the district to extract and analyze the data in a more versatile fashion.

The vision was to find strong leadership for IR through the hiring of a new IR Director. This director would develop a strategic plan to meet research needs and standardize data capture, and eventually manage the new information database that would allow administrators and faculty to make queries about programs, classes, and services right from their desktops.

"There ought to be a master plan for research...so that when we go to ask a specific thing...we've already collected the data in a more general universal database and we just need to pull out those variables."

— Senior Administrator

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Upheaval in the Institutional Research Department

WSD went forward with the committee's recommendations, and began the search for a new IR Director. The decision was made to have the new director report to the Chief Technology Officer (CTO), which marked an abrupt change from the past. The IR Department was already situated within the organizational structure of the district, but did not have a direct reporting function to anyone in the district. Additionally, this meant that the IR Department was somewhat removed from the individual campus communities and culture. This created the perception that the IR Department was also removed to some extent from the wider district community and culture. Due in part to these dynamics, these new plans to have the IR Director report to the CTO caused concerns among some campus-based committee members who voiced their concern about losing control over an increasingly critical function. Meanwhile, the campus communities were concerned that these centralization processes would only further antagonize the IR Department's relations within their wider community. The hiring process was delayed by a year when the District Board turned down the search committee's recommendation for a new IR director, insisting that none of the candidates reflected the board's desire for a candidate who could lead a strong and visionary IR Department. This required the CRD to go back to the drawing board and begin an entirely new search.

"[IR is] totally invisible. I think that's a problem for them; they're literally out of sight, out of mind."

— Senior Administrator

Upheaval in the Information Technology Department

Meanwhile, there had been many complaints concerning the IT Department's lack of responsiveness to technology-related problems. Staff had expressed concern about the department's increasingly distant attitude toward the larger community in terms of setting priorities that more accurately reflected their data needs. In turn, the centralization process of moving from a campus function to a district function sent IT operations into turmoil. The department was faced with integrating two campus offices and a central office. Several CTOs in a row were let go amidst a flurry of expectations and disappointments, and even greater turnover was seen at lower levels.

During this upheaval, plans for the new SIS progressed very slowly. Many other IT projects were floundering as the project leaders left or moved into new roles, vendor contacts changed, or sponsorship wavered.

Finally, in late 2000, David Green was promoted to acting CTO, and he slowly began to re-establish a functioning team. In 2001, he hired Frank Johnson as Strategic Technology Manager, and made him responsible for the planning and development of the new SIS.

New Research Director

Meanwhile, a year and a half after the CRD committee had begun its search, the District Board finally approved Christopher Tyson, a well-known expert in educational research, as the new IR Director.

"I haven't had a strategic thought in months because I'm down here... trying to find out whether this number matches that number."

— IR Director

Cleaning Up the Data

When Tyson came on board, he began to notice problems with the reliability of the data. He was dismayed to find that when members of the IR team had been confronted with inconsistencies in the data in the SIS, they simply told staff, "Well, that's what is there in the computer."

So he began a program of checking and double-checking the data. During those first six months he spent most of his time "in the weeds," working with the data, re-building his staff's commitment to data reliability, and trying to better understand the technology.

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Improving Research Reliability

With the help of IT and rigorous data-checking processes, IR began making progress. The department defined a “snapshot” that allowed it to consistently deliver a small set of reliable enrollment data, reduce the turnaround time for reports to state policy-makers, and enable most users to get what they needed through the IR web site.

Although there was still much to do, Tyson was now able to shift his attention toward hiring the rest of his staff. The process was complex and time-consuming, but eventually he learned to navigate the political processes and brought on two campus researchers to handle ad hoc research requests at each campus.

Close ties with IT had been of enormous help in getting his team in shape. According to the CTO, because Tyson was “right there sitting at the table voicing his concerns,” IR’s requests got the attention they needed.

“The turnaround time for data was just phenomenal... the presidents have never experienced that before.”
— Tech Manager

A More Ambitious Student Information System?

Meanwhile, IT was also starting to address more strategic concerns. As the new Technology Manager, Frank Johnson envisioned a campus-wide system that would integrate all of the district’s data and even extend into the classroom, well beyond the single database initially specified for the SIS. Of course, this more comprehensive campus-wide system would require a substantial amount of money, so Johnson went ahead and priced out the new system, and then set out to enlist the support of the Chancellor and Chief Financial Officer.

However, pursuing a larger scale system meant that the IR team would have to wait for the tools they needed to deliver on the complete mandate, which was to provide a full range of desktop-accessible data. Meanwhile, Johnson arranged for Tyson’s group to work with an interim scaled-down solution: a “mini” data warehouse that pulled data from various sources and enabled searches and queries. As a result, the IR team would not be able to invest in a new system, but the IT Department agreed to provide programmers and other support in getting the interim solution up and running. However, this meant that IR was still confined to using the antiquated data from the aging legacy systems.

Budget Crisis Delays All Plans

In 2002, California was hit with a severe budget crisis. As a result all new hiring was frozen, thus preventing Christopher Tyson from hiring the campus researchers who would have completed his team. Already, his researchers were being swamped by ad hoc requests for data and information.

At the same time, Tyson’s research team also had to contend with demands from several high-level administrators who insisted that the IR Department make its presence more actively felt on campus by attending more meetings, making introductions, and soliciting requests. The budget crisis along with an understaffed team only made these pressures more difficult for the IR Department.

“Given what the budget stuff looked like a few months ago...I figured there was no chance of creating those positions this year.”
— IR Director

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New System On Hold

Once the budget crisis hit, the question of a new campus-wide information system was placed on hold indefinitely. Administrators had become skeptical. Would a new system really improve decision-making significantly? The predominant feeling was that as long as IT could “patch around” the current data problems, campus data users could make the best with what they had.

However, the IT Department saw the situation differently. It expressed a sense of urgency and insisted that the current system was thoroughly inadequate. Although the team tried hard to communicate this message, they were unable to fully demonstrate the ultimate value of the new technology to those who would have to help fund it.

By this point, tensions between college presidents and the IT Department began to develop. New questions surfaced about the IT Department’s ability to oversee the development of a new information system. The IT Department had not succeeded in changing the perception of the department as being unresponsive and detached. Given the overall climate of dissatisfaction and frustration surrounding the plan for a new SIS, it was highly unlikely that anyone would agree to cut their own budgets to contribute to a new SIS—thus slowly ending hope for a new and improved information system.

“Do you realize that [those who] have changed over to [new systems] are three and four years into the implementation and they can’t even tell you accurately how many students are enrolled at any one point in time?”

— Senior Administrator

Possible Reorganization of IT & IR Departments

Many administrators saw the budget crisis as the catalyst that could be used to force a restructuring of the IT Department. They had already drafted a new organizational chart which decentralized responsibility back down to the colleges and eliminated a level of management. This reorganization was also done in the hopes of improving the IT Department’s relations and levels of response to the campus communities.

There were still questions for the IR Department as well. Senior administrators felt that IR had once again, over time, become insulated from the pressures of real needs on campus and that IR needed to take on a more proactive and helpful approach to campus data needs. They also felt that no real changes had been made throughout this entire process—that the campuses were simply getting the same routine data, only slightly faster.

“I think [IR is] supposed to be serving the colleges...they do need to also get out routine data that the state Chancellor’s office requires, but we’ve been doing that all along. We were doing that before we hired any of them.”

— Senior Administrator

Epilogue

Where was the master plan for research and information use, and how soon would the district achieve the vision of having an efficient, universal, and robust information system that would allow individuals throughout the district to address their own research and data needs? When would the colleges get to the level of accountability-related data, such as course completions, persistence from semester to semester, certificate and degree completions, and transfer rates to four-year colleges?

There were no easy answers to these questions. The IR Director had spent his first year simply trying to address the primary concern of reliable and accurate data. This involved navigating through the labyrinth of district hiring processes, and also getting up to speed on the available technologies.

How could the IR Department pursue a more strategic and coordinated plan for data collection and research that would enable the district to get the information it needed? Was this even possible without the new SIS system? How might the district get the data it needed to demonstrate performance outcomes—would the district have to choose between internally focused data or external reporting data? Or could addressing one benefit the other?

To make matters more uncertain, the chancellor announced his resignation, marking an unknown change in leadership. Would a new chancellor place such a high priority on research and data? Would the IR Department be a priority in the new leader’s agenda?

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Introduction to Themes

This section explores patterns that emerge from WSD’s experience, which might have relevance for other districts or as topics for further study.

Internal & External Demands for Data

Prior to the accountability mandates of the late 1990s, the data needs for WSD consisted primarily of enrollment numbers. Although seemingly simple, the effective use of data was prematurely hampered due to an ongoing lack of **consistent and reliable data**, as well as **conflicting and fragmented data resources**. Consequently, the rigorous demands of these accountability trends only added more complications to an already over-taxed and **under-resourced system**. By tying funding directly to performance outcomes, these new accountability mandates created a **heightened sense of urgency**. The internal demands, as a part of people’s everyday work experience, along with the external demands for data that were now linked to funding, came together to highlight and exacerbate the problems of WSD’s information and technology environment.

This new situation raised the question: Will the need to fulfill new reporting requirements crowd out efforts to improve access to data for internal uses and needs? Frustrated and overworked individuals at WSD already had trouble meeting their own data needs. How and where would they find the time and effort to meet additional external reporting requirements while still fulfilling their own data needs? This dichotomy between internal and external demands for data only contributed further complications to an already problematic information landscape.

“There’s all this stuff that our data managers are working around and they’re not making any progress. So as a user, I still have a certain level of frustration. We don’t know a lot of things that we need to know about.”

— Senior Administrator

Centralization & Decentralization

The experiences of WSD also demonstrated the problems of organizational structure, specifically surround centralizing and decentralizing processes. Although there was a clear need for the centralization of information services to ensure timely and accurate data, administrators at WSD were explicit in their concern about the **importance of centralizing the IT and IR Departments**. The administrators’ frustrations with the lack of reliable and accurate data suggested that they would be enthusiastic about change and improvements in their systems. The possible benefits consisted of standardizing processes to reduce delays and redundant work, as well as the opportunity to leverage data across the two campuses, thus creating a more robust and dynamic structure and system.

However, centralization at WSD was such a divisive and politicized prospect that it appeared to be limiting the district to small-scale solutions, while making **larger, institution-wide changes** impossible for political rather than financial reasons. As such, the process of centralization brought to light the many issues surrounding **reorganization, integration and control**.

Historically, the IR Department had been structurally and culturally insulated and isolated from the rest of the campus, resulting in a climate of **distrust of the IR Department**. In turn, organizational reporting structures played a distinct role in driving the IR Department’s priorities, focus, and behavior. Situating the IR Department at the district level, while attempting to subsume it within the IT Department, was an attempt to rectify this. However, in the end, WSD could not overcome many of the barriers that had been woven over time into the political and cultural fabric of the institution. The centralization and decentralization processes were not enough to overcome the far-reaching problems of distrust. Consequently, it was extremely difficult for the organization to successfully upgrade its information systems.

“If you were to ask me, ‘Where is his office located?’ I have no clue. So that’s probably a problem right there.”

— Administrator

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Data Reliability & Attitudes Toward Validation

At the start, WSD was confronted with a situation where the available data were inaccurate and unreliable. As a result, staff had come to view issues with the data and associated IR personnel with a growing sense of frustration. In turn, the IR Department's attitude reflected a lack of ownership of the data. When confronted with the problematic data, IR staff responded with **"that's what was in the machine,"** thus displacing responsibility onto the technological system itself. This only further antagonized the relationship between the IR Department and other divisions campus-wide. Even though the new IR Director worked hard to **instill data-checking processes,** IR staff already felt overburdened in trying to meet the demands for ad hoc queries, and campus administrators and faculty often viewed data with suspicion and a sense of fatigue. Subsequently, the attempt and failure to implement a new SIS further undermined the sense of **authority of IR and the legitimacy of data and technology.** As such, the experiences of WSD demonstrated the difficulties of data reliability and information politics in a climate of heightened urgency. WSD's story shows how historically and culturally embedded problems of data invalidity can calcify over time in such a way that attempts to repair them require delving deep into the underlying attitudes, practices, and structures.

Access & Control

It appears that underlying factors of access and control greatly affected the implementation of the new system. WSD's ultimate vision for the new SIS was to put data on the desktops of administrators and faculty throughout the district. However, this would be a marked **shift from the current system's accessibility and control structure.** Members of WSD consistently spoke of their inability to obtain the kinds of data they needed for their work. It was apparent that **problems of data access and use perpetually plagued WSD.**

Meanwhile, the ongoing **hiring delays and restructuring of the IR and IT Departments** testified to a contentious information terrain where boundaries were being redrawn. The demand for data and information to be widely accessible and accurate at WSD forced issues of control and ownership to the surface. Consequently, the power struggles of WSD show the complex web of politics and control as educational institutions attempt to create greater access to data and information. WSD's efforts to democratize its information landscape reveal how issues of data access, use, and ownership within educational institutions mirrors many of the organizational hierarchies, structures, and cultural dynamics within the organization.

Continuity of Leadership

Another important factor within this process at WSD was a lack of continual and sustained leadership. Constant changes in project champions left technology projects at the bottom of the institution's priority list. For example, several **IT projects were put on hold** when their sponsors left WSD. In turn, constant turnover of the CFO position left the IT Department without a champion to gain the necessary support for funding. Also during this time, **the Chancellor resigned,** further placing the role and priority of research and information use at WSD into question. As a result, there was **a growing sense of inertia** associated with trying to change and improve the current information system.

This raises key issues about the importance of leadership involvement in carrying out successful implementations. Given a high rate of leadership turnover, are projects of longer duration, such as large-scale technology initiatives, less likely to succeed? The experiences at WSD clearly demonstrate the need for continuity in support for these kinds of projects. However, the administrators admitted that even if ongoing leadership had been in place, it would not have guaranteed the effective implementation of a new system. Therefore, barriers to this process extended beyond the problems of leadership. As such, WSD's story illustrates the importance of the continuity of leadership and the subsequent challenges when this is not the case.

"I think colleges, on the whole, are designed not to change."

-- IR Director

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Development of a Culture of Inquiry & Technology

The experiences at WSD demonstrate the importance of an embedded information culture and technology culture within any organization. Districts with a strong information culture will demonstrate a focus on learning, continuous improvement, asking questions and pursuing data that are able to guide their decisions. A strong technology culture supports the use of information for inquiry, meaning, that the organization enjoys an infrastructure of support, useful applications of technology, and access to the technology. In such a culture, people's attitudes, beliefs, and actions also support the use of technology.

Without a firm understanding of how these cultures resist change, educational institutions run the risk of getting caught up in cumbersome manual processes, workarounds, and unreliable data sources, unable to overcome a fragmented technical infrastructure, as seen at WSD. Furthermore, the tenuous balance between information and technology cultures at WSD leads to persistent and embedded conflicts that are best seen in their **ongoing problems with data reliability** and **organizational conflict surrounding their IT and IR Department**.

The unsuccessful implementation of a new SIS can be attributed to these misaligned cultures of inquiry and technology. With a strong culture of inquiry and individuals placing increasing demands for reliable and accurate data, the technology did not match these demands. Technological barriers, limited access to data, along with a growing distrust of the available technology and data, fundamentally came into conflict with people's desires to better understand and improve their organization. Based on WSD's experiences, the co-existing cultures of inquiry and technology demonstrate a critical lens in looking into any technological implementation process.

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Conclusion

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This story illuminates some of the difficult and important issues that educational institutions face as they attempt to meet the demands of internal and external accountability. In highlighting some of the key issues, this story attempts to engage a broader and cross-cutting audience in the fields of policy, education, technology and information systems, and organizational development, and point out several areas for further study. As such, this story opens up a host of questions that can be understood from various perspectives:

1. WSD's experience demonstrates the dichotomies of internal demands and external pressures as educational institutions are confronted with an increased demand for accountability. Will these institutions be able to keep pace with these pressures in an era of limited resources?
2. How can educational institutions better manage the politics of change and systems implementation within an environment that appears rigid and hierarchical?
3. What are the implications for educational institutions and their data systems and information landscapes as they attempt to move forward in these pursuits? What kinds of changes really need to be made in order for these institutions to successfully evolve from one stage to the next?
4. How will this entire process impact students? Will these technological systems ultimately be used to improve student success?
5. How will accountability demands impact future information technology decision making?

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Story Approach



Why Use This Story

This story is particularly useful in research as it highlights patterns that may help us to understand cause and effect over time. In this case, presenting WSD's experience in story form is done with three particular aims:

- 1) To interest a **broader range of readers** – namely, those who care about the future of education, but who might not have the time or inclination to read a more scholarly article – and in the process, **add richness, depth, and perhaps urgency** to the application of more scholarly research.
- 2) To present an account of “what happened” in a way that both **clarifies the relevance** of theory for actual pressures facing education (grounded in practice), to allow the **reader to interpret causes**, patterns, and themes on his or her own, and to help clarify our understanding of the **consequences of cause and effect**.
- 3) To articulate potentially intriguing themes and patterns that could support the **broad everyday theory-making** we use to function in the world, as well as offer **hypotheses for further study**.

Which Story To Tell

There were many stories that could have been told about WSD and its two colleges. At one level, it could be viewed that nothing unexpected happened here: the district responded to mandates, expanded its IR Department, and began to replace its outdated systems—a process that was stalled when the budget crisis hit.

However, a glance at the timeline indicates that the story is much more complex, and that the experiences of this district do not lend themselves to such a neatly packaged story. Furthermore, the unfolding of events, of progress and frustration, appear to resonate in such way as to highlight potentially important patterns affecting educational systems across the country.

So, this is an attempt to tell a story that best fits the perspectives represented at WSD, that points toward the more promising avenues for further action or study, as well as the current understandings of organizational change and human motivation.

Although this story may be only a partial account of the experiences at WSD, it effectively illuminates one part of the education environment, links state policy-makers to the schools they oversee, and traces the drive toward accountability through its consequences in practice.