

# The Whole Is Greater than the Sum of its Parts: The U.S. Census Bureau Human Capital Management Information System

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## Abstract

This paper reviews the development and implementation of the U.S. Census Bureau Human Capital Management Information System (HCMIS) as a means to better understand and measure human capital in a period of structural flux in the U.S. workforce. Three time periods are examined—the pre HCMIS period, the 2002–2003 development period, and the use of the HCMIS in 2003–2007. Focus is on the HCMIS as a fundamental managerial and analytical tool to 1) monitor ongoing human capital and 2) anticipate changes that may require review or adjustment to current human capital.

**KEY WORDS:** human capital, management information systems, U.S. Census Bureau

## 1. Purpose and Background<sup>1</sup>

This paper reviews the development and implementation of the U.S. Census Bureau Human Capital Management Information System (HCMIS) as a means to better understand and measure human capital and the nature of work in a period of structural flux in the U.S. workforce. Three time periods are examined—the pre HCMIS period before 2003, the 2002–2003 development period, and the use of the HCMIS in 2003–2007. Our focus is on the HCMIS as a fundamental managerial and analytical tool to 1) monitor ongoing human capital and 2) anticipate changes that may require review or adjustment to current human capital.

Prior to 2003, the primary purpose of the human resources management information systems at the U.S. Census Bureau was to provide retrospective and descriptive personnel and financial information for routine transactional and reporting requirements. To a lesser extent, such information was manipulated via ad hoc but laboriously and intellectually intensive

processes to inform future workforce staffing requirements, including succession management. With the 2002 President's Management Agenda, systematic and strategic Human Capital Management became a primary objective of federal agencies to attain with measurable milestones. This encouraged the U.S. Census Bureau to view human capital as a phenomenon to be examined within a statistical framework. The HCMIS provides the Census Bureau with workforce data that can be converted to statistical measures for human capital management purposes.

## 2. Context of the HCMIS

### 2.1 What is human capital?

We begin by acknowledging that human capital is not a new concept. 'Human capital' has many definitions and ways of being measured. In the 20th century, economist Gary Becker (1964) articulated the view that individual human capital could be considered as a distinct investment alongside material capital. An individual's education, knowledge, training, and experience were similar to materials and supplies in that they, too, could be assigned a quantitative value. For individual human capital, an initial cost and potential return on investment could be calculated.

In the 21<sup>st</sup> century, the 2002 President's Management Agenda view of human capital governs federal definition. The President's management Agenda aligns the business of government with private sector practice of measurable results. Each fiscal year quarter, the President's Office of Management of Budget scores all federal agencies green, yellow, or red on various major initiatives including strategic human capital, competitive sourcing, and e-government. For federal purposes, strategic human capital is corporate human capital, not solely the sum of individual human capital.

For this paper, human capital is a phenomenon to examine via observation of events in the Census Bureau workforce, including accessions, retentions, promotions, and separations. These observations are quantified using descriptive statistics over various

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<sup>1</sup> This report is released to inform interested parties of ongoing research and to encourage discussion of work in progress. Any views expressed on statistical, technical, methodological, or operational issues are those of the authors and not necessarily those of the U.S. Census Bureau.

time periods, noting any continuity or changes in patterns.

## 2.2 Census Bureau Human Capital Goal and Challenges

The ability to measure human capital flows from the mission statement of the Census Bureau, which is consistent with general federal and statistical principles and standards, “The Census Bureau serves as the leading source of quality data about the nation’s people and economy. We honor privacy, protect confidentiality, share our expertise globally and conduct our work openly. We are guided on this mission by our strong and capable workforce, our readiness to innovate and our abiding commitment to our customers.” Furthermore, Census Bureau data stewardship assumes high quality data for federal purposes; data confidentiality based on “a need to know;” and consideration of the impact over time and space on real people.

Consistent with the Census Bureau mission, the agency human capital goal is: The right people in the right place at all times who, in turn, get to the right people with the right actionable knowledge at all times. This goal expands upon Becker’s emphasis of individual human capital and is more consistent with Max Weber’s idea of bureaucracy as a rationalization of collective activities. That is, in an institution like the Census Bureau, the team takes priority; collective capital is greater than the individual human capital or even the sum of individual human capital.

The Census Bureau human capital challenges are to: 1) maintain institutional knowledge, wisdom, and experience of individuals and teams through various decades; 2) increase institutional knowledge; 3) create innovations as needed; and 4) identify, develop, mentor, and retain employees who can do 1, 2, and 3 individually and collectively as members of the federal statistical community.

The Decennial Census of the Population has taken place each decade since 1790. This constitutional mandate, as well as the data stewardship role of the Census Bureau, has influenced the process of collecting high quality data for Federal purposes. We have a history and legacy of data collection that encompass time-proven methods and processes. Institutional knowledge has increased over decades with new federal requirements for collecting data on the American people and U.S. economy. At the same time, we have a culture and heritage to balance and respect continuity and creativity. Changing circumstances and new challenges have also fueled

necessary innovations such as the shift from clerical to machine counting. Innovations also include efficiencies that build upon past and existing strengths, such as the shift from a full census to a sample survey for obtaining characteristics of the population since the 1940 Census. During this creative period, the innovative concept of continuous measurement, rather than measurement at a point in time, also emerged. The American Community Survey is one tangible example of continuous measurement (Herriott et al., 1989; and Alexander, 2001).

As an example of corporate innovative thinking to develop employees who can address these challenges, the Census Bureau looks at the entire career cycle of employees from recruitment, such as done in Joint Statistical Meetings, to alumni roles like the Wise Elders Program (Gimbel, 2006)). We assume continuous development throughout one’s career that encompasses multiple disciplines and sectors. Such development becomes more important given that a major human capital challenge for all employers and employees is that there are no continuous life-long jobs in the 21<sup>st</sup> century for the foreseeable future. The HCMIS is a major tool in meeting our challenges.

## 3. What is the HCMIS?

### 3.1 A suite of systems

The HCMIS is not one system but a collection of workforce-related management information systems containing financial data, and personnel actions.

### 3.2 HCMIS is a managerial and analytical tool

The HCMIS is a tool to examine not just specific points in time but points over time that provide a picture of dynamic flows as employees move in, around, and out of the Census Bureau workforce. Volatility is expected. The question is whether volatility experienced is reasonable; to be expected; is a blip; or begins a trend. This question can be answered by careful observation of data over time and in terms of user requirements, mainly managers and analysts

### 3.3. Table of the Census Bureau HCMIS, 2003 – 2007

*(See Table 1: Census Bureau HCMIS, 2003-2007)*

This table lists the various data systems that collectively comprise the HCMIS and contain a wealth of transactional and reporting data with analytical potential. The managerial and analytical question is, “What do the data say about Census Bureau human capital?”

## 4 Pre-HCMIS Period

Before the HCMIS, Census Bureau managers and catalysts already faced real-life and real-world questions regarding the agency's workforce.

### 4.1 The 1997-2000 Separation/Turnover Study by Spencer and Wetrogan

#### 4.1.1 Purposes

The purposes of this study that covered the period 1999–2000 were: to 1) develop a database to examine trends in recent turnover; 2) create a snapshot of the agency's workforce; and 3) suggest a turnover rate for the next few years based on these observations.

#### 4.1.2 Analytic Questions

Spencer, Wetrogan and staff from the Population Division and Human Resources Division reviewed several data systems, including payroll and personnel transaction systems to identify the workforce population. They chose the time period of observation of 1997 – 2000, which was a peak period in Census Bureau staffing due to increased hires for the conduct of the 2000 Census. The operational definition for a year was July to June due to the way data were retrievable. For example, operational year 1997 was July 1997–June 1998.

They asked several analytical questions: What are an appropriate universe and subpopulations? What are relevant variables? What does a snapshot show and not show? What constitutes a turnover rate? They settled on a universe of all staff, not just permanent staff in order to account for the decennial peak. To make the study manageable, they focused on the subpopulation of headquarters staff that represented about 40% of workforce. Relevant variables were those that could be easily measured or numerically coded. These included quantifiable variables such as age, length of service, grade level, occupational series and retirement system. Data for each operational year-- 1997 1998, 1999, and 2000-- provided four points or snapshots in time. This did not constitute longitudinal data or a time series. The turnover rate was initially envisioned as total separations (retirements + quits (1997-2000/1997 Population + Hires) \* 100. Subsequently, Spencer and Wetrogan concluded that, for management purposes, looking at annual separation rates was more useful and calculated a conservative 6 percent annual separation rate.

#### 4.1.3 Empirical Findings

Spencer and Wetrogan cautioned that it was unclear what a 6 percent annual separation rate meant and whether such a rate would continue. Not unexpectedly, they found that higher separations occurred for short-term employees and those employees in lower grades. Similarly, the highest separation rates, whether by age or length of service was in the tails---- employees with less than 3 years of service and under 30 years old and employees with 30 or more years of service and 60 years of age old and older.

#### 4.1.4. Lessons Learned

This study was a six month effort by several staff of the Population and Human Resources Divisions to identify and locate relevant databases; bring congruence to variables across data sets; and create computer programs to display counts and characteristics by hires and separations in tabular and graphic form. The management lesson from this study was the need for a systematic way to collect and display real-time and coherent data to understand human capital. Spencer and Wetrogan recommended continuance and expansion of the database for future years, with quarterly review of hires and separations. They also commented on defining types of data users more clearly. In brainstorming the development of the HCMIS, Spencer further encouraged building baseline data for employees hired since 1984 under the portable defined-contributions retirement system, the Federal Employee Retirement System or FERS. Any analysis would begin with a dis-aggregation of the FERS cohorts from the historical Civil Service Retirement System or CSRS employees with defined benefits as career civil servants. The significance of this pre-HCMIS study is that it served as a model for historical, current and projected workforce data and trends and especially as the basis for developing the HCMIS.

### 4.2 Transition from Human Resources Transactional System to HCMIS Managerial and Analytical Tool

The Spencer and Wetrogan study demonstrated that transactional human resources data could be used to answer analytical questions about the past, current, and projected workforces of the Census Bureau. While they identified various systems for their 1997-2000separation study, their identification was not necessarily comprehensive. A first task in developing an HCMIS was to identify all systems in the census bureau with workforce data.

## 5. Development of the HCMIS, 2002–2003

Based on Spencer and Wetrogan's work, it was clear that information about the workforce resided in various heterogeneous data and data systems.

### 5.1 Early Steps toward an HCMIS

#### 5.1.1 Identify all systems with workforce data as a baseline

The first step in developing the HCMIS was to identify and locate all systems with workforce data via consultation with the owners and/or user of these systems that are shown in the following table.

*(See Table 2: of Census Bureau Workforce-Related Systems, 2002 Baseline)*

#### 5.1.2 Develop a framework that considers the Census Bureau culture and larger workforce environment

While the workforce systems provided a wealth of data, a parallel conceptual framework was needed to organize and understand this cornucopia (Lott, 2003). That is, a conceptual framework would provide the parameters and context for making sense of the data. The following framework captures the adaptation of Census Bureau human capital in changing work force environments over time. At the same time, it notes the culture, legacy and heritage within which employees work.

*(See Table 3: Conceptual Framework of HCMIS for a 21<sup>st</sup> Century Workforce)*

### 5.2 HCMIS in the Federal Statistical System

Finally, in the development of the HCMIS, we note that the HCMIS is not only a suite of systems but that it resides within the federal statistical system.

As such, it is governed by standards of federal and statistical systems. This includes not only federal employee standards as public servants but also statistical standards based on the scientific method, critical thinking, and independent analysis. Federal statistical system standards assume that data are a public good. Operationally, this means that focus is on why we collect the data—to provide statistics that inform federal decision-making. As stated in *Principles and Practices for a Federal Statistical Agency*, Federal statistical agency principles include relevance to policy issues and credibility among data users (Martin et al., 2005). Moreover, Census Bureau data stewardship is based on high quality data for federal purposes; data confidentiality and a need to know; awareness of the impact of data on real

people over space and time. All these factors went into the development of the HCMIS under the Census Bureau Human Capital Management Council.

## 6. HCMIS, 2003-2007

### 6.1 The 2002 Baseline of Census Bureau Workforce-Related Data Systems and the 2003-2007 HCMIS

The HCMIS expands the 2002 baseline systems with four additions—DAPPS, the Decennial Applicant, Personnel and Payroll System which is for short term employees only that are specifically hired to staff the Decennial Census of Population and Housing; the Electronic Learning Management System, LMS, that is a department-wide electronic learning system of the Department of Commerce to which the Census Bureau is a user; a telework system, and exit survey findings. These additions improve ability to differentiate between long term and short term staff; improve tracking the alignment of course work with job competencies and career development; capture baseline data on teleworkers; and identify and classify reasons for separation.

*(See Table 1: Census Bureau HCMIS, 2003-2007)*

### 6.2 Census Human Resources Information Systems- (CHRIS)

CHRIS is the backbone of HCMIS with individual micro data and macro data. It was developed in 2000 and first released in 2002 by a team of Census Bureau employees led by Thomas Gramlich and Geoffrey Pejsa in the Human Resources Division. CHRIS is available to managers through the intranet at their desks. It was designed to give supervisors and employees immediate access to human resources information and applications.

CHRIS readily provides quantifiable variables previously identified in the Spencer and Wetrogan study such as age, length of service, grade level, occupational series and retirements systems. In addition, various personnel actions can be tracked ranging from accessions to separations. These can be viewed at the individual employee level, as well as at various office units levels and corporately and by headquarters, regional offices, and processing centers. In the 2003-2007 period, the further evolution of CHRIS with other systems that comprise the HCMIS was its ability to track other career-event data such as training history; work performance; awards and recognitions; time and attendance; and telework use.

### 6.3 HCMIS Users

In order to strategically use the voluminous and heterogeneous data of the HCMIS, it was essential to be clear on who were the users, as well as the strengths and limits of the HCMIS. The former is discussed in this section and the latter in the following section on lessons learned.

For HCMIS users, we began with the definition of ‘data user’ articulated by former Census Bureau Director Vincent Barabba as, “Someone who is consciously taking action to seek information that either assists them to form an opinion or make a decision.” (Barabba, 2006). We further refined this general definition to identify various levels of users as recommended by Spencer. At a corporate level, senior management and human capital analysts turned out to be the HCMIS users for high level profiles and trends. At sub-corporate levels, managers and supervisors and HRD and office administrators used the HCMIS for specific office-level transactional and management/supervisory requirements. At the micro level, individual employees primarily used the CHRIS component of the HCMIS to track their careers. Based on these types of user, various access levels are provided to HCMIS with the overall guideline of “need to know.”

### 6.4 Implementation of HCMIS in 2003-2007

The development and effective implementation of the HCMIS means two accomplishments. First is that Census Bureau workforce data are readily available and accessible to inform management decisions and workforce analysis, as needed. Second, rather than conducting special ad hoc studies such as Spencer and Wetrogan’s earlier work, human capital questions can be posed and answered by routine data analysis and depicted by standard descriptive statistical measures, including ratios and means, and units of analysis, such as subpopulations.

Since personnel and payroll data through the National Finance Center are refreshed daily, HCMIS data are not only retrospective but real-time. This is important for accurately informing short-term decisions. HCMIS also facilitates the creation of projections and prospective data. Finally, the HCMIS has facilitated the extension of the Spencer and Wetrogan database from 1997-2000 to 2001 through 2007.

In summary, the HCMIS allows us to delineate the Census Bureau workforce for human capital management decisions and to create a profile of the agency’s workforce over various time periods

### 6.5 HCMIS Analysis during 2003-2007

Implementation of the HCMIS can be seen in the recent analysis of separations. Based on Spencer and Wetrogan’s earlier findings on turnover and separation rates and their limited use, we refined the unit of analysis to be two target groups—the institutional memory and future leadership. The two distinct pools of Census Bureau human capital for this analysis are: 1) employees eligible for retirement—the savvy, institutional memory for the 2010 Census, and 2) selected new hires in career ladders who constitute the future leadership pool for the 2020 Census and beyond.

#### 6.5.1 Purpose of Inquiry

We posed two basic questions: 1) What is the pattern/ratio of eligible retirement dates to actual retirements for 2003 forward? and 2) What is the pattern of newer, most likely younger professionals hired since 2001 in terms of leaving before 3 years of tenure?

#### 6.5.2 Difference from Spencer and Wetrogan 1997-2000 Study

There are several differences with the 1997-2000 separations study. First, for the retirement analysis, we chose a 2003 start year for employees eligible to retire rather than 2001 (which would be picking up where Spencer and Wetrogan left off) to avoid the peak employment period of the 2000 Census. By comparison, the 2003-2007 period is a ‘valley’ or ‘plateau’ period. On the other hand, for new permanent hires, a 2001 start was more useful to show career-conditional separations before the third year of employment and conversion to career status. Furthermore, these employees were not part of the 2000 Census peak.

A second difference was in terms of the operational definition of an observed year. We chose a calendar year with 26 pay periods to better observe separations, mainly retirements, through the end of a calendar year as end-of-year retirements generally optimize retirement benefits. Third, the target populations were limited to permanent staff. Finally, selected separations were limited to headquarters staff.

#### 6.5.3 Two Target Groups and Their Data

For general strategic human capital management, the analytical question was, “Is the agency workforce decreasing, maintaining or increasing?” For specific 2010 Census and beyond workforce decisions, the strategic question was, “What is the pool that can be expected to retire and what is the pool that must we target to retain?”

### 6.5.3.1 Employees Eligible to Retire

For eligible retirees, we reviewed data as of June 30, 2007 that is the midpoint of the calendar year. The 2003 baseline includes everyone eligible to retire as of the beginning of that year. This included anyone eligible to retire, even as early as the 1980s, who had not yet retired. As depicted in Graph 1 for total Census Bureau employees, the number of employees eligible to retire will grow. This is to be expected given the increase of new hires in the 1970s of the first half of the Baby Boomer cohort who were all under CSRS. The actual proportions of employees who retired that are eligible to retire ranged for 2003-2006 from a low of 16.8% to a high of 24%. Mid year 2007 showed 12.6%.

*(See Graph 1: Census Bureau Retirement Trajectories as of June 30, 2007)*

When numbers are observed by type of retirement system (CSRS or FERS) and by duty station (headquarters, regional offices, and the National Processing Center) different patterns appear. Among headquarters employees, the numbers of both FERS and CSRS eligible to retire increases over time as expected. Of interest is the higher proportion of FERS employees per year who actually retire compared with CSRS ones.

*(See Graph 2: Headquarter Trajectories, CSRS, 2003-2010 as of June 30, 2007; Graph 2: Headquarter Trajectories, FERS, 2003-2010 as of June 30, 2007)*

The greater number of FERS retirees compared with CSRS in regional offices is based on the much greater number and proportion of FERS employees in that duty station. CSRS employees are primarily in headquarters. By contrast, the National Processing Centers has a more balanced ratio of CSRS and FERS employees.

While these graphs depict a finite numbers of observations of a few years, it is clear that not all employees eligible for retirement are walking out the door, immediately or in great proportions. It is not possible to depict any other clear pattern, except for the 2004 anomaly of increased numbers that was found across retirement systems and duty stations. There is research potential for FERS and defined contributions folks to observe whether and to what extent their retirement patterns differ from CSRS and defined benefits employees. One question is whether FERS eligible retirees will exhibit greater actual retirement proportions than historical CSRS retirees

### 6.5.3.2 Selected Separations of New Hires

The universe for New Hires and Younger Employees to Retain was limited to those hired in career conditional positions in the 2001-2006 period; FERS only and GS 7-12 in career-ladder positions. Measures were the number of these employees who separated in less than a year, less than 2 years, less than 3 years, and greater than 3 years.

*(See Table 4: Selected Hires and Separations for 2001-2007)*

What emerges from this table is variation in the number of accessions across 2001-2006 from a low of 72 in 2001 to a high of 162 in 2005. We observe further that the largest number of separations do not necessarily occur within one year of accession, the probationary year of new career-conditional hires.

### 6.5.4 Findings of the Two Analyses

The retirement trajectories of actual retirees to eligible retirees in calendar year 2003 through 2006 range from 226 in 2003 to 325 in 2004 while 2004 stands out as an anomaly at 325 for the Census Bureau as a whole. Employees under CSRS are more likely to be in headquarters while employees under FERS are in the regional offices and National Processing Center. As expected, the number of employees eligible to retire under CSRS will increase. On the other hand, while absolute numbers are proportionally smaller for eligible retirees under FERS, this number is expected to increase through 2010.

As of mid-year 2007 (06/30/07), the numbers of actual retirees is higher than would be expected based on prior years. We will track the third (09/30/07) and fourth quarters (12/31/07, pay period 26) to see whether the numbers of actual retirees continue to increase, level off, or decrease.

In terms of new hires since 2001, findings are quite limited. There is much to learn about the accession, retention, and separation of the next generation of Census Bureau and their federal agency counterparts.

### 6.5.5 Limits and Strengths of the Findings

These findings are descriptive. They are observations of variables related to the Census Bureau human capital. They are not causal and do not address why senior employees retire or new employees separate. Their importance is that they are empirically-based, derived from systematic use of the HCMIS and by the posing of strategic, real-life questions of Census Bureau human capital. Furthermore, the data from

these findings can and will be updated routinely; for example on a quarterly basis, so that the Census Bureau can monitor continuity, detect anomalies, and anticipate change in human capital

## 7. Lessons Learned from the HCMIS

### 7.1 Overall Lessons

There are several lessons from the development and use of the HMIS through 2007. One is that an HCMIS with standard quantifiable variables can provide useful data. While HCMIS analysis is currently limited to variables that are quantifiable, these basic variables are descriptive of the total and sub populations of the Census Bureau workforce by time period, retirement system, mission-critical occupations, and duty station. The HCMIS allows managers and analysts to view human capital by numbers, percents, proportions, and selected target groups

A second lesson is that the historical data of the HCMIS must be viewed prudently in making sense of present patterns.. Historical patterns may or may not be helpful in understanding current and future human capital especially with structural changes in retirement systems; smaller post Baby-Boom cohorts in the workforce; and various levels of work ethic or attachment to the world of work.

Third, the HCMIS is an institutional tool that can be routinely used, maintained, and expanded upon to complement the experience and skills of the Census Bureau workforce. Like the Planning Database, another Census Bureau employee-developed system (Robinson et al, 2007), the HCMIS provides ongoing, systematic information to enlighten management and analytical decisions. It provides an ongoing profile of the ebb and flow and basic characteristics of Census Bureau employees and of target populations as needed. Similarly, the Planning Database provides a basic profile of the demography and geography of each census tract with special attention to target groups, such as hard-to-enumerate populations. Both systems have taken several years of development and are now fully operational. The learning curve and initial costs have been absorbed. In keeping with the Census bureau's legacy and heritage, we expect routine use and maintenance with innovations as needed.

Finally, the HCMIS may be a useful, necessary tool to inform human capital decisions, but it is not sufficient in itself. HCMIS data must be viewed in the context of current conditions such as shown in the HCMIS conceptual framework. In addition, this tool

must be used by appropriate data users. Text requires context. Smart machines require smarter people.

Technology is a tool and not a substitute for human capital; that is, individual and collective talent, knowledge, and experience over decades. Improving technology cannot overcome deficiencies of human capital (Autor et al., 2001; Florida, 1999). The statistical, mathematical and scientific disciplines and professions know only too well that there is a need to expand the U.S. pipeline for current and future employees with analytical and critical thinking skills to anticipate and not only respond to problems; to create the future not repeat the past. The demographers among us think about understanding the characteristics, as well as counts, of the workforce population and subpopulations.

School systems, professional associations, including the American Statistical Association, and employers are concerned with the current and future composition and well being of the U.S. population, particularly a competitive workforce. Those of us in the federal sector particularly worry about the pipeline of the U.S. workforce that can apply, be hired, and be retained for the competitive merit-based civil service.

### 7.2 Lessons for 2008 -2013

In this environment, the HCMIS will serve as an ongoing tool to describe the Census Bureau workforce from accessions to separations for 2008-2013. The HCMIS can continue to provide profiles of current and projected workforce with federal retirement systems for routine reporting periods or for specific requests. It will provide empirical data to complement anecdotal and other qualitative information about accession, retention and separation of employees. Questions of particular interest for 2008 –2013 include:

- Will the ratio of actual retirees to number of those eligible to retire under CSRS and under FERS remain the same or change?
- How will FERS employees behave in terms of length of service?
- With full implementation of the American Community Survey and a short form (100% count only) 2010 Census, will the peaks and valleys of prior census decades be replaced by a plateau?
- To better understand the breadth of Census Bureau human capital, how do we best

account for non Census Bureau employees such as contractors?

### 7.3 Effective Use of Workforce and Other Human Capital Data

In addition to the specific lessons learned in implementing and using the HMCIS during 2003-2007, we reiterate standards for effective use of workforce and other human capital data. First is the collection of high quality data to ensure quality from the beginning as well as to avoid costly “garbage in, garbage out” scenarios. Second is allowance of access to HMCIS data on a need-to-know basis, coupled with trained-to-understand what the data say and don’t say. Third is ensuring congruence between collection and use of HMCIS data with agency mission and standards of federal and statistical systems. Finally effective data use is based on promoting the HMCIS as a continually evolving and innovating tool to inform decisions on human capital.

### 7.2 The whole is greater than the sum of its parts

The development and implementation of the HMCIS has allowed us to see human capital at the Census Bureau not only in terms of the knowledge, skills, training, and experience of individual employees but as a corporate asset. It is not just individuals per se but the synergy and team effort of groups of individual employees and managers that compose Census Bureau human capital. It is the creative culture of this synergy among employees that fosters innovation and balances continuity with change. As Feldman succinctly states, “We need to embed people and information within a system that fits how people in the organizations work, that understands the workflow and when the needs for information arise.” (2004)

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Social Statistics Section

Table 1: Census Bureau HCMIS, 2003-2007

Functions	2003-2007
1. Financial Transactions	NFC – National Finance Center Systems CFS – Core Financial System CBAS – Census Budget Administration System CARMN – Cost and Response Management Work CBS – Commerce Business System
2. Personnel Recruitment and Succession (Promotion & Separation) Actions	COOL – Commerce Opportunities Online System EHS – Electronic Hiring Systems for Managers PARS – Personnel Action Request System Quick Hire DAPPS – Decennial Application Personnel & Payroll System
3. Workforce Development and Retention Tracking	CARS – Census Awards and Recognition System ETMIS – Education & Training Management Information System LMS – Learning Management System Telework System Exit Survey
4. Individual Employee Reporting & Tracking	CHRIS – Census Human Resources Information System
5. Manager and Administrative Staff Reporting & Tracking	CHRIS – Census Human Resources Information System WebTA – Time & Attendance

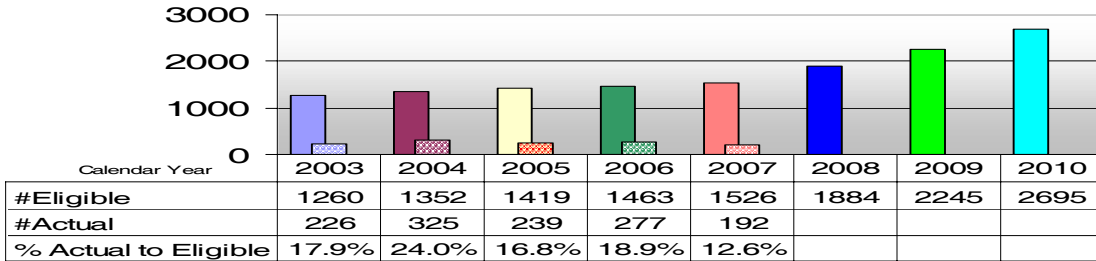
Table 2: Census Bureau Workforce Related Systems, 2002 Baseline

Functions	2002 Baseline
1. Financial Transactions	NFC – National Finance Center Systems CFS – Core Financial System CBAS – Census Budget Administration System CARMN – Cost and Response Management Work
2. Personnel Recruitment and Succession (Promotion & Separation) Actions	COOL – Commerce Opportunities Online System EHS – Electronic Hiring Systems for Managers PARS – Personnel Action Request System
3. Workforce Development and Retention Tracking	CARS – Census Awards and Recognition System ETMIS – Education & Training Management Information System
4. Individual Employee Reporting & Tracking	CHRIS – Census Human Resources Information System
5. Manager and Administrative Staff Reporting & Tracking	HR Vision – SAS (withdrawn 2004)

Table 3: Conceptual Framework of HCMIS for a 21<sup>st</sup> Century Workforce

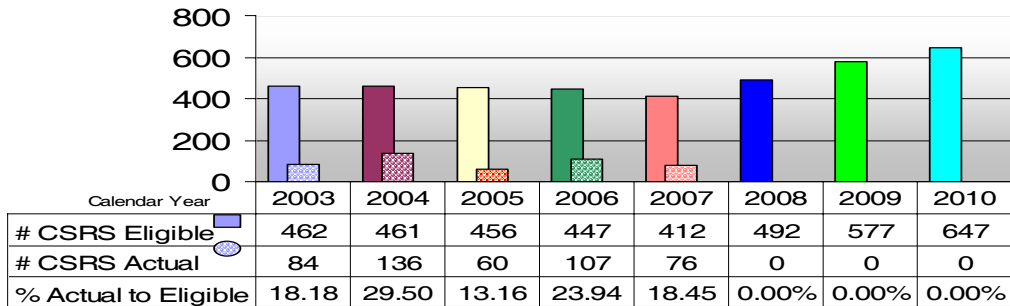
Time Period	Role to the Census Bureau	Structural Changes in Census Bureau Workforce	Changes in Management Information Systems	Changes in Characteristics and Skill Sets Required of Census Bureau Workforce	Economic, Demographic, and Geographic Profiles Population and Workforce
Where we came from: 1902-2002	Constitutional Mandate  “Fact Finder for Nation”  Pioneer in Surveys, Methods, Automation, Estimates & Projections	Civil Service Retirement System  Federal Employee Retirement System introduced in 1986  Contractor support	Civil Service Commission  Office of Personnel Management  From clerical systems to automated ones	Clerical workforce  Innovators: Statisticians Programmers Analysts	- Age Pyramid - Life Expectancy - Sex Pyramid - Fertility Distribution - Racial/Ethnic composition - Rural/Urban continuum - Household composition
Where we are: 2003-2007	Helping You Make Informed Decisions	Baby Boomers Retire  Young cohorts with various attachments to the labor workforce  Contract work continues	Enterprise Human Resources Information (EHRI)	Innovators: Statisticians Programmers Analysts  Contract and program managers  Communication with stakeholders	- Household mobility - Family composition - Immigration - Education and work skills - Dependant ratios - Cohort analysis

**Graph 1: Census Bureau Retirement Trajectories  
as of June 30, 2007**



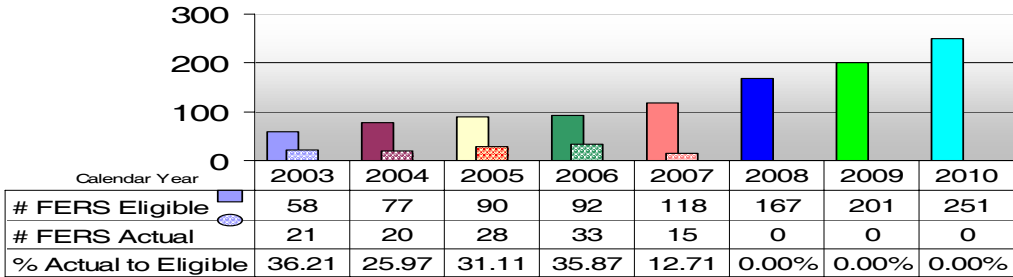
#Eligible: based on employees active 1st pay period of reported year who are eligible for Optional Retirement on or before 12/31 of that year. Includes eligibles from prior years.  
#Actual: based on effective date of retirement from 1/1 to 12/31 of reported year.

**Graph 2: Headquarters Retirement Trajectories, CSRS, 2003-2010  
as of June 30, 2007**



#Eligible: based on employees active 1st pay period of reported year who are eligible for Optional Retirement on or before 12/31 of that year. Includes eligibles from prior years.  
#Actual: based on effective date of retirement from 1/1 to 12/31 of reported year.

**Graph 3: Headquarters Retirement Trajectories, FERS, 2003-2010  
as of June 30, 2007**



#Eligible: based on employees active 1st pay period of reported year who are eligible for Optional Retirement on or before 12/31 of that year. Includes eligibles from prior years.

#Actual: based on effective date of retirement from 1/1 to 12/31 of reported year.

**Table 4: Selected Hires and Separations for 2001-2007  
as of June 30, 2007**

SELECTED HIRES AND SEPARATIONS FOR 2001-2007						
As of: 6/30/2007						
YEAR	ACCESSIONS	SEPARATIONS	SEP WIN 1 YR	SEP WIN 1 -2 YRS	SEP WIN 2 -3 YRS	SEP IN OVER 3 YRS
2001	72	26	9	5	3	9
2002	93	30	8	7	2	13
2003	100	40	5	15	9	11
2004	140	40	17	8	11	4
2005	162	25	12	10	3	0
2006	139	16	15	1	0	0
2007	53	2	2	0	0	0

HQ Only  
 Permanent appt only  
 Only FERS ee's  
 Based on most recent accession to Census  
 If ee had service prior to the accession (as indicated by the SCD\_LV) they were excluded  
 Grades 7-12 only  
 2-grade interval positions  
 Year is based on the year of the accession  
 Data for some years are incomplete because it's too early  
 A "0" value indicates no data because it is too early

I:\kaccess\_reports\Reports2007.mdb\zpt\HRES\_SEP\_tyr\_2yr\_3yr\_2001-2007