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WORKFORCE OF THE FUTURE: POTENTIAL CHALLENGES  
FOR THE INTELLIGENCE COMMUNITY

For some people, the concept of foresight in decision making connotes images of crystal balls, for others pages of complicated graphs or charts with fuzzy calculations. In the public policy environment, foresight is an effort to review and analyze interrelated trends, thereby alerting decision makers to potential change, and thus helping government become more responsive to trends and less reactive to events.

Given that its biggest operating budget item is people, the federal government needs to pay special attention to any changes that will affect its workforce. The key is to recognize the importance of events or demographic shifts and make decisions today that will mitigate or take full advantage of their impact.

When looking at the composition of the current Intelligence Community and envisioning its future workforce, it is difficult to avoid the "demographics as destiny" scenarios put forth in many future-oriented analyses. These projections are important, and much of the discussion here will use them. However, the Intelligence Community, should it act on the best estimates of the future workforce in the near future, will be better able to define the composition and sources of its workforce rather than find it shaped by the labor pool composition.

While "the future" is an abstract term, it is a fact that five of every six people who will be in the labor force in 1997 are already working or looking for jobs today. In 1988, the median years of education required of new jobs is 12.8, 49 percent of families have two wage earners and unemployment is at an eight-year low of 5.5 percent. These factors will influence tomorrow's workforce.

With an older, slower growing, more ethnically diverse and more female workforce projected for the turn of the century, change will become the norm in many respects. This paper examines changing workforce demographics and values in the context of the Intelligence Community of today and what it may have to do to respond to the ever-changing components of the national security mission.

Who Will Work in the Coming Decade?

The end of the 20th century will see a labor force, and thus employment, growing at a rate slower than at any time since the 1930s. The number of young people (age 20 to 29) will decline relatively and absolutely from 41 million in 1980 (18 percent of the total workforce) to 34 million in 2000 (13 percent). Essentially, the lower birthrate of the pre-"baby boom" generation will reassert itself.

The median age of the population will be 36 -- older than at any time in the nation's history -- and the workforce will age with it, from a median of 35 years in 1984 to 39 years in 2000. The proportion of the workforce in each age category will shift, as the birth rate decreases, baby boomers age and the labor participation rate of those over 55 declines, largely because of retirement incentives. This latter point may be mitigated somewhat by retirees who choose to reenter the workforce, perhaps in a part-time capacity, after having retired from their original career.

Age Groups as Proportion of the Workforce: 1986 - 2000

<u>Age Group</u>	<u>Proportion of Workforce, 1972</u>	<u>Proportion of Workforce, 1986</u>	<u>Proportion of Workforce, 2000</u>
16 to 24	23	20	16
25 to 54	60	67	73
55 & older	17	13	11

From the Department of Labor's Occupational Quarterly, Fall 1987

Between 1985 and 2000, 60 percent of new entrants to the workforce will be women. By that time, 61 percent of all women will work, and 47 percent of the workforce will be female. Their wages will be 74 percent of those of their male counterparts, up from the current 67 percent.

By the year 2000, non-whites will grow from 13.1 percent to 15 percent of the total workforce. In so doing, they will represent 29 percent of the net addition to the workforce. The greatest increase will be among working black women, who will outnumber black men. This contrasts with the pattern among whites, where working men outnumber working women almost three to two.

New Workers and their Availability to the Intelligence Community

In general, most professional jobs in the intelligence community (IC) are for those with at least one college degree, and the IC seeks to attract recruits at or near the top of their graduating classes or professions. Surveying current data, blacks and Hispanics are clearly less well-off than whites in every category of economic or social indicators -- unemployment rate, median family employment income, percent below the poverty level and median years of schooling.

This data is not expected to change. College attendance rates have historically been higher among whites than for blacks and Hispanics, a function in part of the larger proportion of white high school students who graduate than blacks and Hispanics (83 percent of whites, 75 percent of blacks and 60 percent of Hispanics in 1984). While these proportions have risen (up seven percent for blacks since 1978 and four percent for Hispanics), recent evidence does not suggest increases in college-going participation rates for minority group high school graduates.

Other factors indicate that, despite their growth as a proportion of the workforce, minorities, especially black men, may not find this a period of unprecedented opportunity. Several factors may put them at greater employment disadvantage: much of the job growth will be in higher-technology occupations requiring more than their current or projected education level; many employment gains will be in these metropolitan regions with relatively few minority residents; employers may bid up wages for the fewer higher-skilled candidates rather than open jobs to lower-skilled workers; and businesses may attempt to substitute capital for labor to offset projected labor shortages.

The Department of Education notes that there has been a substantial increase in the number and proportion of the nation's schoolchildren coming to school from background that increase the chance that they will not do well in school. Many of these "at risk" children will have one or more of the following characteristics: poverty, non-English language background, and single-parent families. This increase in the "at-risk" population will continue into the 21st century. A large proportion of these children will be members of minority groups, and will thus comprise 29 percent of the net increase to the nation's labor pool by the year 2000.

The agencies within the IC may find it even more difficult to create a workforce that represents each racial or ethnic group's proportion in society, especially if minority college attendance does not increase. As public and private sector employers increasingly focus on equal employment opportunity goals, the competition for talented members of minority groups will become even fiercer. Given the relative difficulties in competing in terms of compensation, the intelligence agencies may have to make additional investments in areas such as the Co-op program and or some of the initiatives fostered by the House Permanent Select Committee on Intelligence.

#### Critical Skill Shortages and Factors Affecting Them

Of all jobs created between 1984 and 2000, over half will require education beyond high school, with one third filled with college graduates. Today, only 22 percent of all occupations require college degrees. The median years of education required of new job holders will rise from 12.8 to 13.5 years.

What such aggregate figures do not reflect is the more advanced educational requirements of the intelligence agencies. More important, not all of those with advanced degrees will be available to the intelligence agencies.

The rate of growth in those receiving doctorates from U.S. universities rose five percent in the late 1950s and that rate doubled and then tripled in the 1960s and early 1970s. It peaked in 1973, declined from 1974 to 1976 and has stabilized since 1977.

While this may indicate that the intelligence agencies are competing with other employers for a stable pool of graduates, the proportion of those graduates who are foreign or naturalized U.S. citizens has grown as the overall pool has contracted. Because of security requirements, this means that a considerable portion of additions to the most highly educated segments of the labor force is not available to the IC.

This is particularly true for engineers. In 1982, noncitizens and naturalized citizens together accounted for 15 percent of the bachelor degree holders, 22 percent of the masters, and 36 percent of the Ph.D.s in the U.S. engineering labor force.

This trend continues. In 1986, the proportion of doctorates in the engineering disciplines earned by U.S. citizens were:

Electrical Engineering	41.2
Chemical Engineering	46.0
Civil Engineering	31.5
Mechanical Engineering	38.2
Other Engineering	42.4

With the number of foreign-born applicants to engineering graduate programs exceeding the number of U.S.-born, these figures will probably not decrease. A key factor is that salaries for those with bachelor degrees in engineering are high, thus prompting them to enter the workforce rather than pursue graduate studies.

This trend does not affect only the engineering discipline. The National Research Council reports rising proportions of doctorates granted to non-U.S. citizens since 1958.

Doctorates Earned in the United States

<u>Degree Field</u>	1958 <u>Proportion US Citizens</u>	1978 <u>Proportion US Citizens</u>	1986 <u>Proportion US Citizens</u>
*Computer Science	-	70.2	50.9
*Mathematics	85.3	73.9	50.3
*Electrical Eng.	77.4	52.7	41.2
*Chemical Eng.	88.7	48.7	46.0
*Civil Eng.	69.2	38.6	31.5
*Mechanical Eng.	76.4	52.8	38.2
*Other Engineering	79.6	55.0	42.4
*Foreign Lang/Lit	85.4	84.3	64.9
Biochemistry	86.4	81.2	80.6
Business & Mgmt	91.7	75.0	61.4
Econ/Econometrics	77.4	66.6	55.1
History	91.2	91.9	82.6

\*Indicated in the Conference Report to the 1988 Intelligence Authorization Act as critical skill shortages. Fields other than those identified as critical skill shortages in the Conference Report are provided to show comparisons.

As fewer of those with the most advanced degrees in the critical skill areas are available for intelligence work, the growth rate for jobs in these occupations will also increase. The Hudson Institute projects that growth will be 25 percent across all occupational categories and: 41 percent for engineers/architects/surveyors; 68 percent for natural/computer/mathematical scientists. (They offer no figures for foreign language occupations.) Only lawyers and judges will have more occupational growth (71 percent) than scientists.

While a larger proportion of foreign language doctorate recipients are U.S. citizens than are those in the other critical skill disciplines, this data becomes less encouraging when you examine the number of doctorates awarded in 1986 for Russian (28), Arabic (9), Chinese (13), and Slavic languages (8).

Recent trends show the most growth in advanced degrees in computer and information sciences (38.7 percent more doctorates awarded in 1986 than in 1985). For the same period, doctorates awarded grew only 6.2 percent in mathematics, 5.6 percent in engineering, and 2.5 percent in foreign languages. Engineering bachelors degrees decreased 1.1 percent in 1986, the first decrease in 10 years. Computer/information sciences and mathematics had the largest increase in bachelors degrees awarded that year -- both up 7.7 percent. Foreign languages increased 1.5 percent.

There are not many projection figures for degrees to be awarded between now and the year 2000. Education enrollment rates alone are difficult to predict; the large declines projected for the early 1980s did not materialize, largely because of the increase of older female students and a rise in the college-going rate of 18 to 24 year olds. However, the Department of Education believes that enrollment decline will come, but later and less than had been originally predicted. Overall head count enrollment levels are projected to be about six percent lower in 1992 than in 1985. All of the projected decline is in full-time students. This may indicate more of the future college enrollees will be working adults, many of them retraining for new careers.

### Changing Values Associated with Work

With the demographic changes in the workforce, managers will likely find their employees with different sets of priorities than in the past. Current trends suggest that men and women are seeking to balance career with family and that the pressure for more flexible working arrangements will therefore grow, including demands for company-sponsored day-care, part-time work, and childbirth leave for both parents.

As the workforce ages, it may become more productive (on the theory that age brings with it a more experienced, reliable talent pool). At the same time, older workers and two-career families will probably be less willing to make geographic moves.

More difficult to quantify is the worth of work to those performing it. Through history, work has been judged to be of value, and is characterized by extrinsic rewards (compensation, benefits, status, etc.) and intrinsic rewards (personal achievement, self-satisfaction, etc.). An Aspen Institute study focuses on changing values toward work, and associates many of them with "expressivism," defined as including values such as "creativity, autonomy, rejection of authority, placing self-expression ahead of status, pleasure-seeking, the hunger for new experiences, the quest for community, participation in decision-making, the desire for adventure, closeness to nature, cultivation of self, and inner growth."

The post-World War II worker, having lived through the Great Depression and managed to survive the immediate or threatened peril of war, would have a hard time relating to such a list. While there are no universal indices of "worker values," most manager would acknowledge that their workers focus more on values associated with "self" than they did a decade ago.

This workforce demands such things as more expressions of social conscience on the part of their employers ("don't invest in South Africa") and more flexibility in working hours and benefits.

They want to participate more in managerial decisions, and they are less likely to regard their current job as a lifelong career. Some experts estimate that most workers will perform five or six different jobs over the course of their working life, requiring varying degrees of retraining for each change.

In response to these and other trends, some employers have begun to perceive their workforce as a source of human capital. With job retraining and job replacement costs climbing, high turnover rates are becoming unacceptable -- just as it is unacceptable to management to incur excessive costs due to poorly maintained facilities and equipment. There is a growing willingness to invest more in human resource development and training for workers.

In the intelligence agencies, intrinsic rewards are an even larger part of an individual's rewards system, if only because the workforce can't talk about their accomplishments outside a very limited circle. With a shifting set of values among current and future IC employees, it may be even more important for IC managers to address these value shifts than it is for other employers. The lead times for hiring staff and the difficulty in replacing some of staff members' expertise make it essential to retain valued employees.

### Conclusion

To a large extent, the Intelligence Community must address some of the same issues that other employers will face -- a future workforce that will be smaller and aging, among other factors. The workforce will also have fewer people with the "blend of skill" requirements needed by the sophisticated IC collection systems, and a large and growing proportion of the new graduates with those skills will be naturalized or non-U.S. citizens. Already in direct competition with hi-tech private sector firms, this competition will grow as related need for these positions expands as the workforce contracts.

Since fewer masters or Ph.D. graduates are U.S. citizens than are bachelor degree graduates, the IC could explore ways to attract top quality undergraduate degree holders and further educate them in their field. This would require an exemption from the Government Employees' Training Act, which now prevents the intelligence agencies from paying for education costs related to pursuit of a degree.

Because a growing number workers will be from "at risk" families and because of the expected need for workers to retrain several times throughout their careers, it may be necessary for the IC to provide more training related to direct skill attainment. Employees hired by an intelligence agency, having met rigorous

personnel security requirements and demonstrated a commitment to public service, can be assumed to be worth retaining, and thus retraining, as needed. This is not only a good human resource management policy, but also economical, given the costs of recruitment.

Anticipating future workforce composition cannot assure that the intelligence agencies continue to attract top quality candidates in the increasingly competitive workplace or that they can retain the talented staff they acquire. However, long-range workforce planning -- done in the context of a flexible human resource management approach -- will enhance the intelligence agencies' ability to control the skill mix of their staffs and how these skills are applied to meet their complex missions.

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