

A PRESENTATION AND EXAMINATION
OF THE INTEGRATION OF UNLAWFUL
DISCRIMINATION PRACTICES IN THE
PRIVATE BUSINESS SECTOR WITH
ARTIFICIAL INTELLIGENCE

By

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Scope and Method of Study: This thesis will examine three specific areas concerned with one basic thought: Is it possible to develop artificial intelligence that can be used to aid a business in the handling of employment related discrimination questions. Chapter One will detail the law, doctrines, executive orders, guidelines, and court interpretation of civil rights laws that effect the private business sector. Chapter Two will introduce expert systems to the layman. Included in this introduction is a complete set of definitions as well as a working guide to assist the manager in the integration of expert systems into the workplace. Chapter Three will present two expert systems applications designed to address the concerns of discrimination in the private business sector.

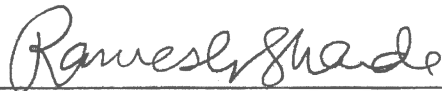
Findings and Conclusions: The thesis successfully presented the private sector in business concerns with regard to discrimination. Chapter One detailed the laws, guidelines, executive orders, and court interpretations which form the laws today. Chapter Two gave the reader insight into the workings of expert systems, their makeup, and most important, how to manage the system and its integration into the business. Chapter Three successfully presented two applications of expert systems which show the ability of integration of the knowledgebase, as discussed in Chapter One, with an expert system, as presented in Chapter Two, is feasible and a functional tool in private business' need to comply with discrimination laws.

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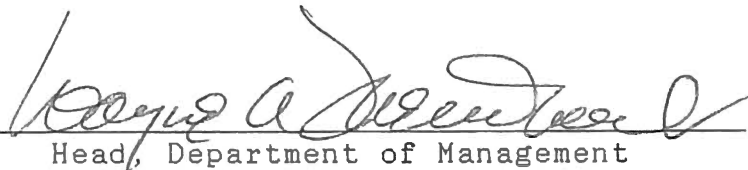
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Thesis Introduction

This thesis will examine three specific areas concerned with one basic thought. Is it possible to develop artificial intelligence that can be used to aid a business in the handling of employment related discrimination questions.

Chapter One will detail the laws, doctrines, executive orders, guidelines, and court interpretation of civil rights laws that effect the private business sector.

Chapter Two will introduce expert systems to the layman.

Included in this introduction is a complete set of definitions as well as a working guide to assist the manager in the integration of expert systems into the workplace. Chapter Three will present two expert system applications designed to address the concerns of discrimination in the private business sector. Finally, a conclusion before the appendices to discuss the thesis.

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CHAPTER ONE:
AN EXAMINATION OF UNLAWFUL EMPLOYMENT PRACTICES
IN THE PRIVATE BUSINESS SECTOR

Section One: Introduction

This examination of unlawful employment practices in a private sector workplace is divided into five sections. Section One will present the organization and discussion framework for all sections in Chapter One. Section Two will present analysis of major federal legislation in the area of unlawful employment practices. Section Three presents executive orders and other federal sources addressing unlawful employment practices. Section Four details selected federal court cases which assist in the interpretation of the legislation and other sources. Section Five will present conclusions concerning Sections Two through Four. It will also address the creation of a database to be used in a computer application to aid businesses in dealing with unlawful employment practices.

Section Two will review federal legislation featuring the Civil Rights Act of 1964. Specifically Title VII, this act created the basic rules and guidelines for unlawful employment practices. Emphasis will be placed on specific areas of discrimination in employment. Discrimination is the act of making a clear distinction (Morris 1976). The federal government uses Title VII to detail distinctions which it considers unlawful in employment practices. The review will address all legislation dealing with unlawful

employment practices from the Equal Pay Act of 1963 through the Americans with Disabilities Act of 1990.

The legislation relating to unlawful employment practices in the private business sector has also been evaluated by federal courts. The court cases were considered on their relationship to specific areas of unlawful employment practices. Specific cases will be sighted to address specific court interpretation of legislation.

Section Two: Legislation Relating to Unlawful Employment Practices

Equal Pay Act of 1963

The Equal Pay Act of 1963 prohibited employers from discriminating between employees on the basis of sex. The Act declared that wages should be paid for the job done.

Civil Rights Act of 1964

The Civil Rights Act of 1964 is the most important piece of legislation concerning unlawful employment practices enacted by the federal government. Unlawful employment practices caused by discrimination were specifically addressed for the first time on the federal level. The Equal Employment Opportunity Commission (EEOC) was created by Title VII of the Civil Rights Act of 1964 to allow employees who thought they were discriminated against to have a federal commission to assist them with their

complaint. Title VII defined the private sector business - applicant/employee interface with regards to unlawful employment practices. Title VII will be addressed by section because of its significance.

Section 701 defines the terms used in the title. The first term is person. This is defines as one or more individuals or entities. The term employer is defined as a person engaged in commerce who has twenty-five or more employees. Employee (working for an employer), labor organization, commerce, industry effecting commerce, and State are also defined.

Section 702 details where the title is not applicable. The specific areas include use of aliens or religious organizations using specific religious persons to conduct religious activities of educational activities.

Section 703 is the most important part of Article VII. Here the definitions of Section 701 are used to define unlawful practices in the workplace, labor organization, or employment agency when the reason is discriminatory. Because of the singular importance of this section, each part will be examined separately.

Part (a) defines what discriminations are illegal in the workplace (based on a person's race, color, religion, sex, or national origin). In addition to defining the types of discrimination, the part defined unlawful

employment practices relating to the hiring, dismissal, and classification of any individual that could diversely effect his status or compensation based on any discrimination criteria.

Part (b) establishes the same laws as Part (a), but addresses these practices at an employment agency instead of the workplace.

Part (c) deals with unlawful employment practices for a labor organization in its relationship with a private business. Exclusion or expulsion from membership, unfair classification guidelines, or causing an employer to discriminate based on the criteria mentioned in Part (a) are specifically defined as illegal.

Part (d) establishes discrimination laws for apprenticeships and other on-the-job training methods. Specifically forbidden is the exclusion of a person from a training position because of race, sex, national origin, color, or religion.

Part (e) acknowledges and creates two factors by which classification is not unlawful. The first factor is discrimination when there is a specific occupational qualification for a certain type of employee. Second is the hiring of employees of a specific religious background when the institution is of the same specific religion.

Part (f) omits membership in the Communist Party of the United States or other organizations registered as a Communist organization from the provisions of Title VII.

Part (g) allows employment practices to be discriminatory if the security of the United States is involved.

Part (h) allows employers to pay different compensation for similar work based on geographic location or work productivity.

Part (i) omits Indian land from all Title VII sections. Part (j) defines and prohibits quotas as a requirement of Title VII.

Section 704 details two specific employment practices considered discriminatory. The first practice is the discrimination of an individual based on that individual's participation in a discrimination proceeding. Second is the printing or publishing of any material which is discriminatory in hiring practices.

Section 705 creates the Equal Employment Opportunity Commission (EEOC). This section also details the procedures to hire EEOC members, office location, how members will be paid, and what powers the EEOC has. The section specifically details the Attorney General as the only person empowered to bring civil lawsuits against claim defendants.

Section 706 details how the EEOC should handle discrimination claims. The Section outlines federal/state interaction, time tables for various stages of the claim, and how the federal courts and Attorney General will interact with the EEOC in matters of employment discrimination claims.

Section 707 explains the procedure the Attorney General will follow to bring a discrimination claim into the federal courts. This section details the EEOC interaction and required recommendations needed to produce such an action.

Section 708 makes all state laws dealing with discrimination subordinate to Title VII in matters of unlawful employment practices.

Section 709 details the methods the EEOC must follow when making an investigation of unlawful employment practices claims. This section shows the EEOC's interrelationship with state and local agencies in information gathering, claim defendant interaction during an investigation, what documents are needed, and that the EEOC is not to make public any information regarding an investigation or a member shall be fined.

Section 710 expands on section 709 by establishing the EEOC's investigative powers. This section specifically

details penalties for hindrance by a defendant during an investigation.

Section 711 empowers the EEOC to require employers to post employment notices.

Section 712 defines discrimination against veterans as a legal employment practice.

Section 713 details the EEOC's ability to modify its procedural regulations as long as the modification is accepted under the Administrative Procedure Act.

Section 714 gives the EEOC the ability to enforce its regulations based on section 111, title 18 of the United States Code.

Section 715 directs the Secretary of Labor to study the effects of hiring in relation to an individual's age.

Section 716 establishes the time table for implementation of the various sections of Title VII.

Military Selection Service Act of 1967

Employers were required to restore a person's position, or a similar position, with timely application to the employer when military service was completed. The restoration will include all normal benefits and promotions given to the workers.

Age Discrimination in Employment Act of 1967

The Act added age (limited to individuals at least forty but less than sixty-five) as a specific criteria for

discrimination. Prohibited by the Act were discrimination based on age for hiring, employment opportunities, and reduction of wages.

Also, the Act stated three specific areas where age was not discriminatory. First is where age is an occupational requirement to perform the normal operations required of the occupation. Second is the use of a bona fide seniority system and benefit package which is not designed to circumvent the Act. Third is to discharge or discipline an individual for good cause.

Equal Employment Opportunity Act of 1972

The Act of 1972 basically modified wording in Title VII. The single significant modification was the change of the Attorney General as the EEOC lawyer to the use of EEOC lawyers as the originators of civil lawsuits governing discrimination in employment claims.

Pregnancy Discrimination Act of 1978

The Pregnancy Discrimination Act of 1978 was an amendment to Title VII. It specified that an employer may not discriminate against pregnant employees.

Age Discrimination in Employment Amendments (1986)

These amendments changed the Age in Discrimination Employment Act of 1967 to specifically address firefighters and law enforcement officers. The amendments added the two

groups to the original act. No provisions of the original act were changed.

Americans With Disabilities Act of 1990

This act added "qualified persons with a disability" as a criteria for discrimination. The act also details the physical requirements an employer must provide to accommodate disable persons as well as limitations that could be considered. The act modifies Title VII in regard to investigation and prosecution of claims to accept the modified criteria.

**Section Three: Executive Orders and Other Federal Sources
Which Address Unlawful Employment Practices**

Executive Orders

Executive Order No. 11141 prohibits contractors and subcontractors engaged in the performance of federal contracts from discriminating against persons because of the criteria established in Title VII, Section 703(a)(1).

Executive Order No. 11246 specifically includes all contractors and subcontractors operating under federal service to be subject to Title VII and all its sections.

Executive Order No. 12171 exempted certain federal agencies from Title VII. Section 703(g) of Title VII established acceptable reasons to not use Title VII, but the order clarified the reasons to include, but not be limited to, intelligence and security functions.

EEOC Guidelines

The Uniform Guidelines of 1978 specified that there is no adverse impact if the worst-performing group (the protected class in question) is achieving at a rate of 80% as well as the best performing group (Jackson 1986). This is commonly referred to as the "80%" or "4/5th's" rule.

In 1980 the EEOC issued guidelines regarding national origin. These guidelines specify that employers have an affirmative duty to maintain a work environment free of harassment on the basis of national origin (Jackson 1986).

Section Four: Federal Court Cases Dealing With Unlawful Employment Practices

The focus of the Federal courts' analysis will be in the areas concerning interpretation of items discussed in Sections Two and Three. The courts can easily expand or retard legislation by the interpretation of laws. The presentation will be divided into specific areas of discrimination as defined by Title VII's Section 703(a). An analysis of court interpretation will be presented using actual cases to support the arguments.

RACE

The Civil Rights Act of 1964, Title VII, outlines that race is a potential discriminatory factor in employment. In the private sector, the person who feels discriminated

against for racial reasons has many precedent setting cases to use in a discrimination action against an employer.

The area most likely to be viewed as discriminatory is the hiring and promotion practices of private businesses. The Oklahoma District Federal Court of Appeals declared that word-of-mouth recruiting which created an imbalance in the hiring of employees is considered discriminatory to one race if the hiring practice creates a workforce which is statistically not representative of the racial mix of the general population (*Diggs v. Western Electric Co., Inc.* Court of Appeals, OK, 1978). This declaration was affirmed by the District Court of Maryland where it decided that the use of an employee's personal reference of an applicant was discriminatory due to the workforce's racial mix not representing the general population's mix (*Abron v. Black & Decker Mfg. Co., District Court, MD, 1977*).

The use of the general population's mix of discriminatory groups as a guideline for establishing a percentage of a particular discriminatory group's claim to jobs only has merit when the applicants or employees are qualified for the positions applied for (*Markey v. Tenneco Oil Co., Court of Appeals, LA, 1981*). The employer has a successful defense against discrimination if the disparity of workers of a certain discriminatory group is due to lack of qualified workers rather than hiring or promotion

practices. While requiring and documenting qualifications is an adequate defense, in most cases, to justify a hiring or promotion; the employer should also be aware that a lack of any members of a discriminatory group in regards to the promotion or hiring will cause the court to closely look at the employer's practices in filling the position. (Kinsey v. First Regional Securities, Inc., District Court, ME, 1977).

Evaluation of an applicant for a position or of an employee for a promotion should be conducted objectively. An employer should be able to produce ratings materials which justifies the selection of a particular candidate over another. If for some reason an employer strays from an objective evaluation criteria then, the employer may be subject to discrimination charges as outlined in Title VII. The employer must establish a standard set of criteria, objective or subjective, and apply the criteria to each applicant in a fair and impartial manner. The criteria should be communicated to the applicant/employee and any problems addressed before an evaluation by the employer. The main factor in deciding if the evaluation of a applicant is discriminatory is the methods used in the evaluation, not the criteria of the evaluation (Thompson v. McDonnell Douglas Corp., District Court, MO, 1976). All evaluations of applicants by employers must be unbiased and

presented in a consistent manner. Failure to be consistent to all applicants allows applicants to file discrimination claims under Title VII.

The potential for race discrimination may also occur when an employer reduces the workforce. The use of reduction methods which contrast with the general workforce's racial population creates an exposure based on the court established doctrine that a workforce's racial mix should reflect the general population's racial mix.. The employer must not bias a workforce reduction based on racial characteristics. Whether a production line faces automation, a temporary layoff occurs, or the employer faces a bulk transfer of a percentage of its workforce, the employer is bound by Title VII to fairly choose the workers to displace. The use of the general population's racial mix and the unbiased evaluation of workers involved in the reduction will allow the employer to reduce his workforce and not expose himself to potential racial discrimination claims (Bush v. Lone Star Steel Co., District Court, TX, 1974).

NATIONAL ORIGIN

National origin discrimination lawsuits in the private workplace have dealt with two specific issues; the languages allowed at the workplace and the determination of the national origin of the worker or applicant. Title VII

was specific in stating that "This title shall not apply to an employer with respect to the employment of aliens outside any State" (Civil Rights Act of 1964, Title VII, Section 702). The courts have affirmed this legislation by stating that being an illegal alien is not a basis of discrimination by national origin (Espinoza v. Farah Mfg. Co., Inc., District Court, TX, 1973). In deciding if any plaintiff had relief from an employer the courts stressed that discrimination based on alien status rather than national origin did not allow an employee/applicant any relief from such discrimination (Guerra v. Manchester Terminal Corp., Court of Appeals, TX, 1974).

When faced with the question of bilingual work places employers can use the "business necessity" definition of Title VII to avoid using any language but English in the workplace. The courts have affirmed the use of only English in the workplace as non-discriminatory when evaluated on national origins criteria (Garcia v. Gloor, Court of Appeals, TX, 1980). The decision stressed the use of English as the workplace language but the employer must prove that the use of English is a business necessity as defined by Title VII, Section 703(e).

SEX

The federal courts have interpreted discrimination based on gender similarly to discrimination based on race.

The employer has the burden of establishing that the evaluation process for hiring/promotion was objective relating to all applicants. The applicant must be treated in an unbiased manner with clear evaluation criteria used. This criteria must be used consistently for the employer to have an adequate defense for any discrimination claims (Willingham v. Macon Telephone Publishing Co., Court of Appeals, GA, 1975). The use of workforce demographics may also be used to establish gender discrimination. Employers must show why qualified applicants of one gender are not represented in the workforce as they are in the general population (Wetzel v. Liberty Mutual Ins. Co., Court of Appeals, PA, 1975). If the employer does not use a standard set of criteria to review all applicants for a position then the employer discriminates against a certain gender group. The criteria must be objectively presented and unbiased in design. Failure to communicate the criteria of evaluation exposes the employer to possible discrimination claims (Donohue v. Shoe Corp. of America, District Court, CA, 1972).

The courts have expanded the discrimination based on gender to also include discrimination based on physical ability and pregnancy. The courts have determined that a blanket discrimination of one gender based on "myths and purely habitual assumptions" are no longer accepted as

qualification justifications refusing one gender certain positions. The only requirements are unbiased evaluation criteria equally applied to all applicants (City of Los Angeles, Dept. of Water and Power v. Manhart, District Court, CA, 1978). The exclusion of one gender from applying is no longer acceptable if the applicant was not allowed to demonstrate the ability to perform the physical tasks required. This testing should be used by the employer to screen all applicants. Failure to require all applicants to perform qualifying tests can lead to discrimination claims (Rosenfeld v. Southern Pacific Co., Court of Appeals, CA, 1971).

Pregnancy is defined as a "temporary disability" when used in discrimination cases (Holthaus v. Compton & Sons, Inc., Court of Appeals, MO, 1975 and Roller v. City of San Mateo District Court, CA, 1975). With this court derived definition the discrimination of females based on pregnancy related issues has expanded. While an employer may require employees to take a maternity leave, it is discriminatory to force the employee to leave at a certain time if the employee can still perform her job (Stansell v. Sherwin and Williams Co., District Court, GA, 1975). When pregnancy is used as an illness two specific areas arise; work restrictions and returning from maternity leave. At the present no court cases have been decided addressing these

areas, but if a court decision is rendered it will be incorporated here.

RELIGION

The extent of court interpreted use of religious discrimination centers on two specific principles. If the religious belief requires the employer to make accommodations for an employee to practice his religious beliefs and if these accommodations create an undue hardship for the employer. It is a duty of the employer to accommodate the religious observances of an employee. The observances are to be documentable obligations of the religion (Shaffield v. Northrop Worldwide Aircraft Services, Inc. District Court, AL, 1974). The employer is only required to make an accommodation of the employee's religious activities. This requirement is not designed to force the employer to burden others or the business for the employee's religious needs (Weitkenaut v. Goodyear Tire & Rubber Co., District Court, VT, 1974).

GENERAL

While the preceding sections showed court interpretation of discrimination by group, this section will give general rules not referenced to a specific group.

In evaluating an applicant, an employer is obligated to hire using the general population's demographic mix of race, sex, national origin, and color. He is not required

to hire anyone but qualified applicants for positions. This qualification must be objectively determined by evaluating all applicants and should be documented to avoid discrimination claims (Reynolds v. Sheet Metal Workers Local 102, District Court, DC, 1980). If an applicant for a positions fails to properly fill out the required paperwork then it is not discriminatory to reject the application if all incomplete applications are rejected. Further, it is not discriminatory to reject an applicant if the applicant does not reveal any qualifications and is rejected as unqualified. The employer has no responsibility to inquire about qualifications. (Knight v. Father Flanagan's Boys' Home, District Court, NE, 1979 and Armstong v. Ryder Truck Rental, Inc., District Court, AZ, 1978).

The court cases presented show three general evaluation techniques to use in determination of potential discrimination claims. First is the use of the general population's demographic mix of race, sex, race, and color to determine the workplace's demographics. Second is the use of clear and unbiased criteria to evaluate applicants. Third is the presentation of the criteria in an objective manner. This presentation should be documented for proof of fair evaluations and testing of all applicants.

Section Five: Conclusions

The courts have both expanded and constricted the laws relating to unfair employment practices. The use of qualifications of applicants has allowed employers to choose whomever they want. The possibility of discrimination claims is addressed by the fair, unbiased evaluations which determined the best qualified candidate. The documentation of evaluation techniques insures the employer with justification of the choice. The courts also expanded the handling of pregnancy in the workplace. The employer can not make as type of interpretation on a person's condition. The worker may enjoy the same employment criteria as anyone who has endured a short term illness.

The laws were constricted when demographics were discussed. The general theme was clear and consistent. the demographics of the general population should form the basis for determining the demographics of the workforce.

An employer has two choices when faced with a discrimination question. First is the use of government assistance. This is very time consuming and requires the employer to remember that the EEOC and all discrimination operations are governmental. Second is the use of a consultant, who is on call for several employers. This proposition is very expensive. There will now be a third source.

Chapter Three will detail the creation of a knowledgebase using the legislation and the court cases (as expressed earlier in this section) it is possible to use artificial intelligence (AI) operating on a personal computer to assist the employer in discrimination areas. Section Two gave the laws in summary, Section Three detailed other sources, and Section Four showed how the courts interpreted these laws. AI can be "taught" to use this knowledge and give the employer a decision on a personnel matters including hiring, training, layoffs, and terminations. It is important to remember the database of the AI will be fluid. This will allow changes to the database as new legislation is introduced and new court decisions are handed down.

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CHAPTER TWO:
INTRODUCTION OF EXPERT SYSTEMS
AND
INTEGRATION OF ARTIFICIAL INTELLIGENCE
INTO THE BUSINESS ENVIRONMENT

Section One: Introduction

This examination will focus on the development and integration of expert systems into the organization. Edosomwan (1989) identified six phases to aid in development and use of knowledge based expert systems (KBES). These phases outline how engineers, application experts, and users must work together to address issues involved with implementing an expert system. This examination of expert systems and how they need to be integrated into the organization is divided into three sections. Section One will provide a brief overview of the examination and define terms used in the examination. Section Two will focus on the six phases and how the users, developers, and managers need to interact to make the expert system function. Section Three deals with the organization and how the expert system needs to be assimilated into the organization. It will also conclude the examination by detailing management's expected position in dealing with the assimilation.

An expert system is a computer based application that is designed to assist a person using the knowledge of an expert. It uses computer processing and software to duplicate the knowledge of an expert in a specific area (Senn 1990). This system has many uses: Providing expert advice to non-experts, providing assistance to experts,

replacing experts, and serving as a teaching tool (Senn 1990). All expert systems are designed with the thought of increasing one's ability through expert assistance.

An expert system may vary in the components it contains, but all expert systems contain four essential components; the knowledge base, the inference engine, a knowledge-acquisition module, and an explanatory interface (Forsyth 1984). The knowledge base is where the information about a certain subject is contained. The inference engine consists of search and reasoning procedures that enable an expert system to find solutions and, if required, provide justifications for its conclusions (Forsyth 1984). The knowledge-acquisition module is where the search and reasoning procedures of the inference engine are developed and tested. The explanatory interface is where users of an expert system interrogate the system to find answers. This is the weakest link in an expert system.

Section Two will present a six phase approach to install an expert system. The phases will stress the interaction of the developers of the systems, the organization and its managers, and the end-users. Section Three will discuss how to integrate the expert system into the organization. The section will also explore how the

managers should develop the workers into competent expert system users.

Section Two: An Examination Of Edosomwan's Six Phases Of Knowledge Based Expert System (KBES) Development.

Phase One: Identifying KBES Opportunities.

Senn (1990) identified four areas where KBES could be used:

1. Providing expert advice to non-experts.
2. Providing assistance to experts.
3. Replace experts.
4. Serving as a teaching tool.

To assist the system developers, the managers need to solicit ideas from the workers as to the use of the expert system. Most managers have a direction or purpose that the expert system should fill, but they fail to involve the end users.

The question of what role an expert system plays is likely to be a major factor influencing how easily it can be incorporated into an existing organization (Young 1989). There are two roles the expert system could fill. First is the advisor. Here the expert system provides the user with assistance to complete a task. The expert system does not complete the task nor process commands to expedite the task's completion. The second role is the intelligent front-end. Here the expert system acts as a "shell" around a computer application. It aids the user by translating commands so the application may run them. These two roles are analogous to consulting with a colleague (first role)

or speaking through a translator (second role). Either role may contain one of Senn's four areas of KBES.

Phase Two: KBES Justification and Selection.

Any computer application an organization considers will have to be cost justified. There are several factors to consider when dealing with this justification. These include the costs of installation, maintenance, and workers displaced by the KBES. Other factors to consider are increases in productivity and depreciation costs. These will give management an estimation of the feasibility of acquiring the KBES.

Edosomwan (1989) stated the 6C principles for managing technology and research and development projects. These principles were controls, coordination, communication, cost avoidance, contribution analysis, and cooperation. In the study of justification cost avoidance becomes critical to the project. In addition to the direct costs of acquisition, management must be prudent not to allow the KBES costs to get out of hand. Prudent use of available funds will allow the organization to budget and purchase what can be afforded.

Selection of a KBES does not have any ground rules. Senn (1990) gave three reasons to consider an expert system; to capture expertise, to minimize risk of error, and to interrelate large volumes of essential information.

An organization can use these reasons to form a foundation for selection of the KBES. An organization needs to develop factors which influence the type of KBES needed. Here it is essential to get the users involved. To simply have management select a KBES without input would put the project at a performance disadvantage.

The most important consideration is performance of the system. Will the KBES perform the expert items required of it? Testing of several systems by end users and getting feedback on performance will allow the organization to better address the needs of users and purchase the correct system. Selection of the systems to test is dependent on the hardware available. These are KBES for both mainframe and personal computers. Selection of a systems should depend on the needs of users only. An organization should recognize that ignorance in the area of users' needs will cause any innovation suffer performance problems.

The second consideration is the supplier interface. Will all the organization's installation and support needs be met by a supplier? The supplier needs to be chosen before the KBES can be tested, but the organization's end users should have the most input in developing the criteria to determine the optimum supplier.

Third is the consideration of the organization's policies relating to expert use. As of 1991 there is no

clear company direction available that details how this information should be handled and addressed. General organization guidelines can be modified to address the confidential nature of the knowledge base. The overriding consideration is the organization's needs to keep the KBES a users friendly system.

Phase Three: KBES Design and Development Considerations.

Here is where the rules that form the knowledge base are created. The rules form the base from which the KBES will make its determinations and then give users the assistance they need to perform their duties. These rules will be created from an expert source. This source could be a person, literature, the decision of groups or any information that allows the KBES to determine a basic result. It is important to remember that the system can only be as good as the knowledge used to form its rules. At this point management should examine how the knowledge base will effect workers. Does this change in technology create a possible decrease in workers' abilities to perform their assigned tasks or do the workers perceive the change as a positive use of technology to enhance their abilities? Using the conventional organizational hierarchy will not allow workers to express themselves in an open discussion medium. To assist managers with the design of the system,

there must be a continuation of the use of an open organization to allow all system users to have input.

As with the choice of the KBES used, the creation and development of the knowledge base is vital to the system's success. The KBES-user interface is vital to the system performing as management expects. The designers need to continue to solicit input from the users to gain both trust and understanding in an effort to satisfy needs and expectations. The system's software components are not a critical area. Users in the organization have already given their input as to the needs the system should satisfy, but the designers are faced with the installation of the KBES for the organization. Here the use of an open organization is critical to success. The users, managers, and designers need to meet and decide on the look and feel of the KBES. Attention to the user-system interface is the major discussion topic in these meetings. It is critical for the KBES to allow ease of use and ease of action.

Since the selection of the KBES will also select an interface for users, the developers must use the users input to create the knowledge based rules for the KBES to use in its inference engine. The inference engine is the part of a KBES where the knowledge base is used to form questions. As these questions are answered by a user, the KBES can infer an answer to their request based on their

responses. The inference engine may work in one of two ways. Forward chaining is where the questions work in a domino effect with no predetermined end result. The rules which form the questions link to allow question to happen in a predetermined order (Bryant 1988). The order eventually reaches a conclusion which is given to the user. In backward chaining the user tells the system the answer and then the KBES works to determine if the user has the ability to reach that conclusion based on questions derived from the knowledge base. In either method it is the user who must make answers available to allow the KBES' rules to be used. The developers should not lose sight of where the organization wants the KBES to perform. The marriage of the organization's overall usage and the user's interface are the problems the developer faces. These problems could escalate if managers ignore one group to allow the other to have more influence.

Phase Four: KBES Evaluation and Testing.

The development of the knowledge based rules also requires testing. The developers, experts, and the users all need to be in agreement when the rules are evaluated to insure the knowledge base is what the organization wants the KBES to know. Since any KBES is not static in its ability to change, the developers, experts, and users may offer insight as to the KBES' use in achieving goals. The

importance of the KBES's ability to change allows both careful initial installation and the evolution of the system as the knowledge base changes. To achieve the maximum performance from the system it is necessary for the organization to be understanding to the developer, expert, and user needs.

When the KBES is being evaluated both the knowledge based rules and the procedures to make the system function are examined. The rules will be tested to insure proper functions. The procedures will require a different type of evaluation. Every procedure in the KBES must be examined on two different levels. Level one is the interface between the user and the computer application. Level two is the effect the KBES will have on the organization and the way management will deal with the effects.

Level one is the interaction between the user and the application. Most expert systems try to avoid the problem by requiring that the user be an expert, familiar with the concepts and terminology of the domain (Young 1989). This view of the normal user in an organization is incorrect. The normal user is simply a member of the organization with no special expertise in expert systems nor and any special knowledge for the knowledge base. To enhance the organization's typical user it is imperative to have the user control the system. The KBES will stimulate the user

to respond to questions which the KBES will apply to knowledge based rules and then respond to the users with either an answer or more stimulus. This information transfer between the KBES and the user must be made to be efficient. Input from the users is essential to achieve this efficiency. KBES applications generally require the user to give specific answers to questions. The answers must be carefully developed and installed. The developer should use the users to develop the basic design of the questions and answers. This will aid the developers in achieving a KBES that meets the organization's needs and satisfies the needs of the users.

Level two deals with how management will use the expert system in the organization and how the organization will react to this change. The discussion for this topic will be presented in Section Three.

Phase Five: KBES Implementation and Monitoring.

While the first four phases required the developers, experts, and the users to communicate to determine the best methods of making the KBES work, it is now time to put the KBES and users into a daily functional routine.

The first consideration is the ease of use. Does the KBES provide the users with a quick and accurate way of providing assistance? In Phase Four the KBES was tested to determine any application or knowledge-base flaws in a

theoretical work environment. The KBES is now being brought into the "real" world. There is the possibility that other flaws will arise. To avoid the loss of productivity, the application developers and the end-users need to meet and communicate frequently about the KBES. Ease of use involves two areas: The interaction between the user and the KBES and the execution of the KBES problem solving logic routines (Edosomwan 1989).

The users must be trained. Training will require both a change in procedures and thinking. Managers must prepare themselves for the organization to evolve in structure as the KBES training changes the conventional methods of management. The training will be the first step in the re-organization of a company. If management is to make the change positive it must instill upon the users and those involved with the users that the changes have an achievable and realistic purpose.

The application developers can develop a realistic training plan. This plan will require management review before it is revealed to the users. The manager is accountable for the identification and implementation of the training and development needs/requirements (Westernman 1989). This requires the manager to work with the application developers to create a literate and confident users.

The ability to easily use the KBES will enhance the user's solution skills. After training to gain that agility the user needs to become comfortable with using the system to analyze problems. Here the user needs to communicate with the KBES. The users knows how to work the system and needs to solve problems to make the system function. In order for communication to be effective, the KBES must have some knowledge about the users (Young 1989). This requires the KBES to be developed with a specific user group in mind. Whether nurses, machinists, or choir boys the KBES has to know how to communicate to effectively provide the full extent of its abilities.

Finally, the system is implemented. Now comes the task of maintenance to insure the KBES is performing at optimum efficiency. The KBES is already defined as a fluid system. this allowance for change will provide the user with an ability to continually keep the KBES current. This maintenance may come from a change in the knowledge base, the modification of a rule or string of rules, or from user interaction with the KBES to evolve the system to better interface with the users. The important point is the application is not static and was never designed to be static. It was designed to change and will continue to Change and meet the organization's requirements.

Phase Six: KBES Ongoing Maintenance and Monitoring.

Any application for a computer is only as good as the users make it. The users must make sure the performance is within the organization's level of acceptance. When "something" changes, the users need to alert the developers to modify the KBES to meet the new needs of the organization.

The types of changes that can occur are varied. Whether a change in the initial problem definition, the skill level of users, the way the KBES functions, or the solution presentation, all these are directly communicated by/to the users. The users will do the ongoing monitoring of the KBES and the developers are required to listen, hear the users, and quickly address the problems presented.

To maintain a high level of competence, the KBES requires periodic examinations from the developers. This is not to change any parts of the KBES or knowledge base, but to insure the KBES is working properly. This checkup is done to perform two functions; troubleshooting and examination of task processes. As stated earlier the KBES is a fluid medium. This requires the developer to continually examine the functions of the inference engine to insure no corruption of the internal functions have occurred. The other function is the examination of task processes. Again the fluid nature of the KBES requires the

use of periodic examination to insure the KBES works as designed.

Section Three: The Organization's Evolution to Accommodate the KBES.

When the organization considers a KBES application in the workplace, the users are seldom asked to express their opinions. This lack of input causes the probable users to feel slighted and increases stress. The friction that management attempts to suppress or eliminate with the innovation of a KBES is fueled by management's disregard for the user. Section Two shows how the KBES should be installed. This optimum solution only deals with the KBES and how it will be used by the organization. The problem it uncovers is the organization's disregard for how the KBES will be integrated into an evolving organization. This lack of vision is common. The organization and its managers have no clear reason for the change or are focused on change for reasons unrelated to the users of the new application. To better integrate the KBES into the organization, the managers will have to evaluate the organization. This includes an examination of cultural malfunctions of the organization. Also, the possibility of stress created by changing job designs needs to be considered. And finally, the use of White's "Six Themes Of Success With Technology" will bring managers of the organization to an understanding of how the users should be

integrated into the new organization structure to insure the objectives established by the organization are realized.

KBES and related system applications have had very little examination in relation to the organization's culture. The manager has to use generalizations and attempt to personalize them for the KBES-user interface. The manager's main reason for examining how the culture will be impacted by the KBES is the possibility of cultural malfunction. The four symptoms, alienation, conflict, despair, and mediocrity, will cause the organization to become very unproductive until a new culture becomes functional. Each symptom should be considered for each user. Managers may have to be trained to understand the symptoms, but the proactive manager will insure that the culture evolves and accepts the KBES rather than managing users who experience cultural malfunctions.

Using the four symptoms as tools, a manager can diagnosis the disease of cultural malfunction. His/Her training will allow the manager to work with the user to address alienation by making sure that the users are well represented during the installation process. The KBES is fluid and by allowing users to shape it the managers create an environment of ownership. Alienation also involves the users losing identity. The KBES will require the user to

interface with it and answer question from a machine. This could make a user feel as if the KBES was smarter or even superior to the user. The manager who senses this must work with the user to demonstrate the KBES is simply a tool, as helpful as any other computer application. Effective use of ownership and the belief that the KBES is only an application to provide assistance in performing a job will suppress the alienation a user could feel.

When the KBES is introduced to the users a clear and specific purpose must be defined and explained. Whether the use is related to being an advisor or a translator to an advanced package (Young 1989) the manager must clearly define why the change is being done and the effects on the workers. This open discussion will allow users to communicate concerns and get management responses to these concerns. Keeping communications open with users and clearly stating a purpose will suppress the possibility of conflict.

During Edosomwan's Phase Five the users were introduced to an interactive training environment to learn how the KBES works and how to make it function. Nothing is more frustrating than inadequate training and the managerial expectation that the job should be done. The feeling of hopeless despair could spread like cancer throughout the organization. To thwart the despair a

manager must carefully training the users in an atmosphere of managerial hands-on training. Have the managers show users that they know how to do it and are prepared to work with the users to assist them to competence.

Managers must find ways to make the KBES an integrated part of the organization. To accept a mediocre level of performance will start the organization down the path of cultural malfunction. Managers must accept the KBES as an application which can assist workers to increased levels of productivity. The manager must have a clear understanding of the purpose and how the users are to assist in the attainment of that purpose. The manager must be a cheerleader to the users to motivate them to an acceptable level of performance.

Organizations that search for excellence care about the health and well-being of their employees (Sankar 1991). The manager who has this "burned" upon his brain will be understanding of the users and the stress the KBES will cause. The users can expect the old work groups to disappear and other social interactions to change. Other changes could include new managers, the KBES, and work flow. Managers need to harness the user's adaptability and handle it with extreme care. The possibility of uneasiness is feasible with any change, but if managers force some parts of the change quickly there is an increased

likelihood of stress. Letting the users and the managers work the changes into a normal routine will ease the possibility of stress. Allowing the users to adapt themselves will give the managers an easier group to manage as there is better understanding of what to do.

To succeed in the installation and use of the KBES there needs to be a planned process. Examination of literature yielded no clear and easy method to plan the introduction of technology to a skeptic user. White (1991) introduced six themes to use for successful technological innovation.

Theme One is a focus on business. Managers need to convey to the users that the organization has a clearly defined business reason for installing the KBES. As previously discussed, the managers can utilize the business reason to motivate the users into ownership of the idea that the KBES will help us achieve a certain, attainable objective.

Theme Two is the recognition that the user is adaptive to a point and will work with the organization to make a project work. Being flexible will allow managers to train the users to perform the required functions with the KBES and also get feedback from the users concerning the way the KBES works. Communications during training must be two-way and open. The organization should train in small units to

insure users can express their opinions and thoughts to a manager.

Theme Three is the use of organizational cohesion. The organization should recognize the culture of the organization and work to make sure cultural malfunctions are avoided. The organization should use teams of workers who share tasks to use the KBES. Maintenance of the knowledge base, interfacing with the inference engine, and interpretation of the KBES solution are some of the team items.

Theme Four is the entrepreneurial culture an organization needs to maintain to grow. From the highest manager to the mail clerk, an organization must convey a spirit of careful evolution to compete. The KBES could be considered radical if managers make it sound radical. The managers must be willing to sacrifice a conventional pyramid structure to satisfy users and technology rather than force technology and users to adapt to the old system.

Theme Five is the sense of self-understanding. A KBES user needs to be reaffirmed that the application is only a tool that does not decrease the user's importance to the organization. The manager has a responsibility to make the user's self-worth a primary consideration when the KBES is decided upon.

Theme Six is the need for "hand-on" management. Training a user in the functions of the KBES requires a delicate and understanding hand. The best teacher has traveled the road of training themselves. A manager should not put the ability to perform below them. A respected manager can do the job.

Using the six themes will allow an organization to develop an action plan that addresses the user, the KBES (or any technological change), the management, and the organization. All must be considered, but the brunt of the use will be at the lower levels and that is where the majority of the consideration should be.

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CHAPTER THREE:
PRESENTATION OF EXPERT SYSTEMS
USING CIVIL RIGHTS INFORMATION
TO SERVE AS THE KNOWLEDGEBASE

Section One: Introduction

This examination of expert system applications is divided into four sections. Section One will introduce the two expert systems chosen for the presentation. Section Two will present Mahogany as the expert system detailing both the rules used in creating the expert system and an application outline so a novice may use the application created. Section Three will present VP-Expert as the expert system again detailing the rules used in creating the system and a brief outline to enable the casual computer user to make the system function. Section Four will conclude the Chapter by reviewing the effectiveness of both expert systems in addressing the knowledgebase and providing expert advice.

The two expert systems were chosen through consultation with Dr. Ramesh Sharda. Dr. Sharda presented a variety of expert systems which could run on a basic IBM XT (or compatible). The use of these expert systems at no cost and being readily available from Oklahoma State University enabled the applications to be developed and evaluated in a short period of time.

Both applications' knowledgebases will be based on information from Chapter One. Mahogany will use the information to create a knowledgebase that addresses the employer's practices in relation to applicants, employees, and general business conditions. VP-Expert's knowledgebase

will be developed to address the problems applicants present when being evaluated. Specifically, are the applicants members of a group the Civil Rights Act of 1964 (and later amended) reasoned to be a discriminatory group.

Section Two: Mahogany

Mahogany was chosen as an expert system because of its strong use of mouse driven commands. Anyone who has used Microsoft Windows or window-like programs will see that these applications are strongly influencing the way a person uses a computer. Mahogany's usage guide will detail mouse commands and non-mouse commands. The detailing of the rules will reference specific items discussed in Chapter One. Finally, the objects (choices) to use in Mahogany are truncated by space limitations. To assist the casual user in gaining an accurate consultation, the objects are included in their entirety in Appendix A.

The rules:

1. Rule #1 references the Equal Pay Act of 1963 as discussed on page 2 of Chapter One
2. Rule #2 references the Civil Rights Act of 1964, Section 703, Part (a), as discussed on page 3 of Chapter One.
3. Rule #3 references the Civil Rights Act of 1964, Section 703, Part (b), as discussed on page 3 of Chapter One.
4. Rule #4 references the Civil Rights Act of 1964, Section 703, Part (c), as discussed on pages 3 & 4 of Chapter One.

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5. Rule #5 references the Civil Rights Act of 1964, Section 703, Part (d), as discussed on page 4 of Chapter One.

6. Rule #6 references the Civil Rights Act of 1964, Section 703, Part (e), as discussed on page 4 of Chapter One.

7. Rule #7 references the Civil Rights Act of 1964, Section 703, Part (f), as discussed on page 4 of Chapter One.

8. Rule #8 references the Civil Rights Act of 1964, Section 703, Part (g), as discussed on page 4 of Chapter One.

9. Rule #9 references the Civil Rights Act of 1964, Section 703, Part (h), as discussed on page 4 of Chapter One.

10. Rule #10 references the Civil Rights Act of 1964, Section 703, Part (i), as discussed on page 4 of Chapter One.

11. Rule #11 references the Civil Rights Act of 1964, Section 703, Part (j), as discussed on page 4 of Chapter One.

12. Rule #12 references the Civil Rights Act of 1964, Section 704, as discussed on page 5 of Chapter One.

13. Rule #13 references the Civil Rights Act of 1964, Section 712, as discussed on page 6 of Chapter One.

14. Rule #14 references the Military Selection Service Act of 1967, as discussed on pages 6 & 7 of Chapter One.

15. Rule #15 references the Age Discrimination in Employment Act of 1967, as discussed on page 7 of Chapter One.

16. Rule #16 references the Age Discrimination in Employment Act of 1967, as discussed on page 7 of Chapter One.

17. Rule #17 references the Pregnancy Discrimination Act of 1978, as discussed on page 7 of Chapter One.

18. Rule #18 references the Americans With Disabilities Act of 1990, as discussed on page 8 of Chapter One.

19. Rule #19 references the Equal Employment Opportunity Commission's Uniform Guidelines of 1978, as discussed on page 9 of Chapter One.

20. Rule #20, Line #1, references Diggs v. Western Electric Co., Inc. - Court of Appeals, OK, 1978, as discussed on page 10 of Chapter One.

Rule #20, Line #2, references Abron v. Black & Decker Mfg. Co. - District Court, MD, 1977, as discussed on page 10 of Chapter One.

Rule #20, Line #3, references Markey v. Tenneco Oil Co. - Court of Appeals, LA, 1981, as discussed on page 10 of Chapter One.

Rule #20, Lines #4, #5 & #6 references Thompson v. McDonnell Douglas Corp. - District Court, MO, 1976, as discussed on page 11 of Chapter One.

Rule #20, Line #7, references Bush v. Lone Star Steel Co. - District Court, TX, 1974, as discussed on page 12 of Chapter One.

21. Rule #21 references Espinoza v. Farah Mfg. Co., Inc. - District Court, TX, 1973, as discussed on page 13 of Chapter One.

22. Rule #22, Line #1, references Willingham v. Macon Telephone Publishing Co. - Court of Appeals, GA, 1975, as discussed on page 13 of Chapter One.

Rule #22, Line #2, references City of Los Angeles, Department of Water and Power v. Manhart, District Court - CA, 1978, as discussed on page 14 of Chapter One and Holthaus v. Compton & Sons, Inc. - Court of Appeals, MO, 1975 & Roller v. City of San Mateo - District Court, CA, 1975, as discussed on page 15 of Chapter One.

23. Rule #23, Line #1, references Shaffield v. Northrop Worldwide Aircraft Services, Inc. - District Court, AL, 1974, as discussed on page 15 of Chapter One.

Rule #23, Line #2, references Weitkenaut v. Goodyear Tire & Rubber Co. - District Court, VT, 1974, as discussed on page 16 of Chapter One.

The Operating Instructions:

To start Mahogany you should place the "Mahogany" disk in the "A" drive of an IBM compatible PC. Type "Mahogany"

at the "A:\\" prompt and begin the consultation session by pressing "ENTER".

The software will begin by providing a window with a selection of knowledgebases to choose from to begin the session. Use the tab key to move into the file names window. From there select "thesis.kb" using the up and down arrows highlight it and press enter.

Once the knowledgebase is loaded, activate the menu by pressing the "ALT" key. From there move the cursor with the left and right arrow keys to "Inference" and press "ENTER". Several selections will be available. To begin the consultation select "Clear All" to remove any previous consultations and press "ENTER". Next repeat the process but select the "Backchain" option to start the expert system "thinking".

The system will ask you to request something to think from. For the purposes of this examination use the "F5" key until "civil rights interpretation" appears. Press the "F6" key to select "civil rights interpretation" and several options will be displayed to select from. Use the "TAB" key to move to the area of the options. Press the space bar to select the option you wish to use. Remember to consult the object list in Appendix A for a complete list of all objects. When finished press the "F4" key to use the selection in consultation. Mahogany will display

an interpretation of civil rights laws based on the selection.

To end the session press the "Alt" key. Move the cursor with the arrow keys until "File" is highlighted. Move the cursor with the arrow keys until "Quit" is highlighted and press "ENTER". Press the appropriate "F" key to save, cancel, or discard the session and the session will end.

To utilize the consultation with a mouse begin as follows: First start Mahogany as stated above. Next double click on the "thesis.kb" knowledgebase. Move the mouse to the "Inference" option of the menu and click once. Select "Clear All" and again click once. Select "Inference" again, clicking once and then "Backchain", again clicking once.

Move the cursor to the "F5" option of the window's menu and click until the "civil rights interpretation" choice is displayed. Move the cursor to "F6" and click once. This will display several options to backchain from. Move the cursor to select the option you wish to use and click once. When finished move the cursor to "F4" in the window's menu and click once. This will begin the consultation session. To leave Mahogany just move the cursor to "File" and click once. Select "Quit" and click once. Choose to save or discard the consultation by moving

the cursor to the appropriate area and click once, this will end the consultation session.

Section Three: VP-Expert

VP-Expert was selected for its simplicity and because it is the expert system software used in master's level business studies at Oklahoma State University. The system uses the function keys exclusively with no mouse or other pointing device interface available. The version of VP-Expert used only offers 24 options to use in developing a knowledgebase. The rules for the knowledgebase were all compiled from the Civil Rights Act of 1964, Section 703, Part (a), with later amendments to include age (Age Discrimination in Employment Act of 1967) and physical disabilities (Americans With Disabilities Act of 1990).

The Operating Instructions:

To begin the VP-Expert consultation place the "PC-Expert - Program" disc in the A:\ drive and type "vpx" and press "ENTER". VP-Expert will begin with a three window environment. Place the "VP-Expert - Knowledgebase" disc in the A:\ drive. Since all VP-Expert commands are function key driven and displayed as such on all menus, choose the "F6" key to display all the available knowledgebases. Move the cursor with the arrow keys until "thesis.kbs" is highlighted. Press "ENTER" to select this knowledge base. After selection the consultation can begin. To start

choose the "F4" key. After VP-Expert has validated all the rules a menu board will appear at the bottom. Choose the "F2" key to tell VP-Expert to go. The three window environment will reappear and in the top window will be the choices of employment practices to choose. Move the cursor to the selection for consultation and press "ENTER" After selection is complete press "End" (It's the #1 on the keypad when the "Num Lock" is turned off.) This will start the consultation and finish with the rules effecting the selection displayed in the lower left window and the conclusion displayed in the lower right window. After finishing the consultation, quitting is done by simply pressing "F8" to return to the main menu and "F8" to end the program.

Section Four: Conclusion

Chapter Three explored the presentation of two different views of the same basic knowledgebase. Using two very different software packages allowed a presentation with variety. Both expert systems allow the layman to discover specific insights into discriminatory employment practices. Mahogany offers mouse clicking to expedite the user's entry into the consultation and offers the ability to have more variables considered by the inference engine. This allows the use of an infinite amount of objects to be considered in the knowledgebase. VP-Expert is smaller in ability than

Mahogany but it is very easy to use. While the ability of VP-Expert is small (It only allows 24 choices before it truncates the options.), it can be used for simple tasks where multiple evaluations of choices are needed. Both expert systems satisfied the application design they were used for. Careful evaluation of an employer's needs will allow the choice of either of these, or maybe another expert system, to satisfy the user's needs for information.

R E F E R E N C E S

Mahogany, Emerald Intelligence Inc., Ann Arbor, 1990

VP-Expert v2.1, Paperback Software Co., New York, 1988

Thesis Conclusion

The thesis successfully presented the private sector in business concerns with regard to discrimination. Chapter One detailed in great detail the laws, guidelines, executive orders and court interpretations which form the laws today. Chapter Two gave the reader insight into the workings of expert systems, their makeup, and most important how to manage the system and its integration. Chapter Three successfully presented two applications of expert systems which show the ability of integration of the knowledgebase as discussed in Chapter One with an expert system, as presented in Chapter Two, is feasible and a functional tool in the private business' need to comply with discrimination laws.

APPENDICES:
RULES AND OBJECTS
FOR THE
EXPERT SYSTEMS USED
IN CHAPTER THREE

*** OBJECTS *** of C:\MAHOBANY\THESIS.XB ***

All rights

interpretation

ployment

practice

automatic values:

- is to operate as an employment agency
- is to be a labor union
- is discrimination because of Communist Membership
- is discrimination because of Communist Registered Organization
- is national security considerations
- is treatment of pregnant not as an illness
- is evaluation based on 80% of control group testing
- is word-of-mouth recruiting
- is not representative of the general population
- is not based on qualifications
- is not to objectively evaluate performance
- is not to evaluate all employees from the same criteria
- is not consistent by race
- is to reduce the workforce but ignore the general population mix
- is payment based on sex of employee
- is not to pay for performance
- is based on color of employee skin
- is based on religion of employee
- is based on sex of employee
- is based on national origin of employee
- is based on age of employee
- is based on disability of employee
- is apprenticeship evaluation based on race
- is apprenticeship evaluation based on sex
- is apprenticeship evaluation based on national origin
- is apprenticeship evaluation based on color
- is apprenticeship evaluation based on religion
- is apprenticeship evaluation based on age
- is apprenticeship evaluation based on disability
- is requiring certain qualifications
- is having religious requirements as business necessity
- is compensation influenced by geographical location
- is business is located on Indian Land
- is to utilize employment quotas
- is discrimination because of participation in a discrimination hearing
- is business publishes materials which are discriminatory
- is no special consideration of a veteran
- is employees in active military service
- is to not hire or promote persons > 40
- is to not hire or promote persons < 65
- is all jobs have certain duties
- is to have a seniority system in place
- is justified discipline of employees
- is disability does not affect performance
- is not hiring illegal aliens
- is bilingual workplaces
- is considering sex when testing applicant's qualifications for work

is not to define pregnancy as a temporary disability
is not to accommodate specific religious requests
is not an economic burden

*** OBJECTS *** of C:\MAHOGANY\THESIS.KB ***

*** R U L E S *** of C:\MAHOGANY\THESIS.XB ***

LE [1] (Equal Pay Act of 1963)

F -----
 (1) the employment practice is payment based on sex of employee [threshold 0.20]
 (2) or the employment practice is not to pay for performance [threshold 0.20]

THEN -----
 (1) civil rights interpretation is discrimination by employer [certainty 1.00]

LE [2] (Civil Rights Act Of 1964)

F -----
 (1) the employment practice is based on color of employee skin [threshold 0.20]
 (2) or the employment practice is based on religion of employee [threshold 0.20]
 (3) or the employment practice is based on sex of employee [threshold 0.20]
 (4) or the employment practice is based on national origin of employee [threshold 0.20]
 (5) or the employment practice is based on age of employee [threshold 0.20]
 (6) or the employment practice is based on physical disability of employee [threshold 0.20]

THEN -----
 (1) civil rights interpretation is discriminatory behavior [certainty 1.00]

LE [3] (Civil Rights Act Of 1964)

F -----
 (1) the employment practice is to operate as an employment agency [threshold 0.20]

THEN -----
 (1) civil rights interpretation is to be governed by the same discrimination laws [certainty 1.00]

LE [4] (Civil Rights Act of 1964)

F -----
 (1) the employment practice is to be a labor union [threshold 0.20]

THEN -----
 (1) civil rights interpretation is for the labor union to be governed by discrimination laws [certainty 1.00]

LE [5] (Civil Rights Act of 1964)

F -----
 (1) the employment practice is apprenticeship evaluation based on race [threshold 0.20]
 (2) or the employment practice is apprenticeship evaluation based on sex [threshold 0.20]
 (3) or the employment practice is apprenticeship evaluation based on national origin [threshold 0.20]
 (4) or the employment practice is apprenticeship evaluation based on color [threshold 0.20]
 (5) or the employment practice is apprenticeship evaluation based on religion [threshold 0.20]
 (6) or the employment practice is apprenticeship evaluation based on age [threshold 0.20]
 (7) or the employment practice is apprenticeship evaluation based on disability [threshold 0.20]

THEN -----
 (1) civil rights interpretation is a discriminatory action [certainty 1.00]

LE [6] (Civil Rights Act Of 1964)

F -----
 (1) the employment practice is requiring certain qualifications [threshold 0.20]
 (2) or the employment practice is having religious requirements as business necessity [threshold 0.20]

THEN -----
 (1) civil rights interpretation is not applicable as discrimination [certainty 1.00]

LE [7] (Civil Rights Act Of 1964)

F -----
 (1) the employment practice is discrimination because of Communist Membership [threshold 0.20]
 (2) or the employment practice is discrimination because of Communist Registered Organization [threshold 0.20]

THEN -----
 (1) civil rights interpretation is discrimination laws are not applicable [certainty 1.00]

.E [8] (Civil Rights Act Of 1964)

F -----

(1) the employment practice is national security considerations [threshold 0.20]

HEN -----

(1) civil rights interpretation is discrimination laws do not apply [certainty 1.00]

.E [9] (Civil Rights Act Of 1964)

F -----

(1) the employment practice is compensation influenced by geographical location [threshold 0.20]

HEN -----

(1) civil rights interpretation is an allowed practice [certainty 1.00]

.E [10] (Civil Rights Act Of 1964)

F -----

(1) the employment practice is business is located on Indian Land [threshold 0.20]

HEN -----

(1) civil rights interpretation is no jurisdiction for civil rights [certainty 1.00]

.E [11] (Civil Rights Act Of 1964)

F -----

(1) the employment practice is to utilize employment quotas [threshold 0.20]

HEN -----

(1) civil rights interpretation is quotas violate civil rights laws [certainty 1.00]

.E [12] (Civil Rights Act Of 1964)

F -----

(1) the employment practice is discrimination because of participation in a discrimination hearing [threshold 0.20]

(2) or the employment practice is business publishes materials which are discriminatory [threshold 0.20]

HEN -----

(1) civil rights interpretation is practice is a violation of the law [certainty 1.00]

.E [13] (Civil Rights Act of 1964)

F -----

(1) the employment practice is no special consideration of a veteran [threshold 0.20]

HEN -----

(1) civil rights interpretation is law is not violated [certainty 1.00]

.E [14] (Military Selection Service Act of 1967)

F -----

(1) the employment practice is employees in active military service [threshold 0.20]

HEN -----

(1) civil rights interpretation is employment position is guaranteed [certainty 1.00]

.E [15] (Age Discrimination Act of 1967)

F -----

(1) the employment practice is to not hire or promote persons > 40 [threshold 0.20]

(2) or the employment practice is to not hire or promote persons < 65 [threshold 0.20]

HEN -----

(1) civil rights interpretation is age discrimination is not allowed [certainty 1.00]

.E [16] (Age Discrimination Act of 1967)

F -----

(1) the employment practice is all jobs have certain duties [threshold 0.20]

(2) or the employment practice is to have a seniority system in place [threshold 0.20]

(3) or the employment practice is justified discipline of employees [threshold 0.20]

HEN -----

Appendix A - a5

(1) civil rights interpretation is discrimination laws are not applicable [certainty 1.00]

E [17] (Pregnancy Discrimination Act of 1978)

(1) the employment practice is treatment of pregnant not as an illness [threshold 0.20]

HEN

(1) civil rights interpretation is discriminatory practice [certainty 1.00]

E [18] (Americans With Disabilities Act of 1990)

(1) the employment practice is disability does not affect performance [threshold 0.20]

HEN

(1) civil rights interpretation is accommodation of disability [certainty 1.00]

E [19] (EEOC Guidelines)

(1) the employment practice is evaluation based on 80% of control group testing [threshold 0.20]

HEN

(1) civil rights interpretation is practice is not discriminatory [certainty 1.00]

E [20] (Court Cases Relating to Race or Sex)

- (1) the employment practice is word-of-mouth recruiting [threshold 0.20]
(2) or the employment practice is not representative of the general population [threshold 0.20]
(3) or the employment practice is not based on qualifications [threshold 0.20]
(4) or the employment practice is not to objectively evaluate performance [threshold 0.20]
(5) or the employment practice is not to evaluate all employees from the same criteria [threshold 0.20]
(6) or the employment practice is not consistent by race [threshold 0.20]
(7) or the employment practice is to reduce the workforce but ignore the general population mix [threshold 0.20]

HEN

(1) civil rights interpretation is actions are violations of Title VII based on race [certainty 1.00]

LE [21] (Court Cases Based On National Origin)

- (1) the employment practice is not hiring illegal aliens [threshold 0.20]
(2) or the employment practice is bilingual workplaces [threshold 0.20]

HEN

(1) civil rights interpretation is action is not discriminatory [certainty 1.00]

LSE

(1) employment practice is business necessity only in questions of bilingual workplaces [certainty 1.00]

LE [22] (Court Cases Specific To Sex)

- (1) the employment practice is considering sex when testing applicant's qualifications for work [threshold 0.20]
(2) or the employment practice is not to define pregnancy as a temporary disability [threshold 0.20]

HEN

(1) civil rights interpretation is action is discriminatory [certainty 1.00]

LE [23] (Court Cases Based On Religion)

- (1) the employment practice is not to accommodate specific religious requests [threshold 0.20]
(2) and the employment practice is not an economic burden [threshold 0.20]

HEN

(1) civil rights interpretation is action is a violation of the employee's civil rights [certainty 1.00]

LE [24] (Court Cases Based On Religion)

F

Appendix A - a6

(1) the employment practice is not to accommodate specific religious requests [threshold 0.20]

EN -----

(1) civil rights interpretation is : Does request create an economic burden for employer? [certainty 1.00]

*** RULES *** of C:\MAHOGANY\THESIS.KB ***

None
 Display
 This is an expert system. It will assist you in the determination of
 applicants for employment or promotion in regards to discrimination
 disabilities. It will allow you to make assumptions regarding race,
 sex, age, national origin, physical disabilities, and religion.

To begin the consultation press the ENTER key.*"

1) Situation;

2) e 01

Race = White AND
 Sex = Male AND
 Religion = Non_Factor AND
 National_Origin = English_Type AND
 Physical_Disability = None AND
 Age = 2

3) Situation = No_Discrimination_Problems;

4) e 02

Race = White AND
 Sex = Female AND
 Religion = Non_Factor AND
 National_Origin = English_Type AND
 Physical_Disability = None AND
 Age = 2

5) Situation = Discrimination_Problems;

6) e 03

Race = White AND
 Sex = Male AND
 Religion = Factor AND
 National_Origin = English_Type AND
 Physical_Disability = None AND
 Age = 2

7) Situation = Discrimination_Problems;

8) e 04

Race = White AND
 Sex = Male AND
 Religion = Non_Factor AND
 National_Origin = Non_English_Type AND
 Physical_Disability = None AND
 Age = 2

9) Situation = Discrimination_Problems;

9) e 05

Race = White AND
 Sex = Male AND
 Religion = Non_Factor AND
 National_Origin = English_Type AND
 Physical_Disability = Possible AND
 Age = 2

n Situation = Discrimination_Problems;

e 06

Race = White AND

Sex = Male AND

Religion = Non_Factor AND

National_Origin = English_Type AND

Physical_Disability = None AND

Age = 1

n Situation = Discrimination_Problems;

e 07

Race = Non_White OR

Sex = Female OR

Religion = Factor OR

National_Origin = Non_English_Type OR

Physical_Disability = Possible OR

Age = 1

n Situation = Discrimination_Problems;

Race : "
Please choose the race of the applicant.";

Choices Race : White, Non_White;

Sex : "
Please choose the sex of the applicant.";

Choices Sex : Male, Female;

Religion : "
Should the applicant's religion be a factor in consideration of, or employment
opportunities of, the applicant?";

Choices Religion : Factor, Non_Factor;

National_Origin : "
Should the applicant's national background be English or another type?";

Choices National_Origin : English_Type, Non_English_Type;

Physical_Disability : "
Should the applicant have any physical limitations which would require
consideration, but DO NOT effect qualifications?";

Choices Physical_Disability : None, Possible;

Age : "
Please use the range which has the applicant's age in it. Choose 1 for between
40 and 65 and 2 if the range is not 40 to 65.";

Choices Age : 1, 2;

VITA

Michael T. Damore

Candidate for the Degree of

Master Of Business Administration

Report: A PRESENTATION AND EXAMINATION OF THE INTEGRATION OF
UNLAWFUL DISCRIMINATION PRACTICES IN THE PRIVATE
BUSINESS SECTOR WITH ARTIFICIAL INTELLIGENCE

Major Field: Business Administration

EXPERIENCE

1988 - present Administrative Manager
Golden Eagle Distributing Co., Tulsa OK

My duty is to manage the daily office operations of an Anheuser-Busch owned and operated beer wholesaler. This includes the daily balancing of sales to cash received, beer inventory reconciliation and management, reconciliation of all bank accounts, responsibility of maintaining all hourly employee records, ensuring all bills are paid in a timely manner, management of four clerical workers, management of cooperage and gift shop inventories, responsibility that all administrative functions conform to Anheuser-Busch auditing requirements for the functions, performing financial analysis on route profitability and finished product loss, and serving as Controller in the absence of the Controller.

1985 - 1988 Night Supervisor
Anheuser-Busch Inc., New Orleans, LA

My duties included the supervision of the draught loading area, verification of route representative's truck inventory, loading accuracy on outgoing route representative's trucks, participation in end of month inventory count and weekly inventory of the draught cooler and loading area.

EDUCATION

1988 - 1992 Pursuit of a Master degree in Business
Administration at Oklahoma State University. I
expect to complete my studies in the Spring of
1993.

1985 - 1988 Post graduate studies in accounting in
preparation for Master level studies at the
University of New Orleans.

1976 - 1980 Studied for and received a Bachelor of Science
Degree in Management from the University of New
Orleans.