

# **Professional Practices**

**“Human Resource  
Management and  
Software Engineering”**

# Contents

- A model of HR management-salient features for software engineering
- The software factory

# Human Resource Management

- **Human resources** are the people who make up the workforce of an organization, business sector, or economy.
- A human resource is a single person or employee within an organization. Human resources refer to all of the people of that organization.

# Human Resource Management

- A human-resources department (HR department) of an organization performs human resource management i.e. overseeing various aspects of employment such as
  - compliance with labor law and employment
  - standards, administration of employee benefits
  - some aspects of recruitment and dismissal.

# Human Resource Management

- **Human resource management** is the strategic approach to the effective management of organization workers so that they help the business gain a competitive advantage
- Commonly known as the *HR Department*, it is designed to maximize employee performance in service of an employer's strategic objectives.
- HR is primarily concerned with the management of people within organizations, focusing on policies and systems.
- HR departments are responsible for overseeing employee-benefits design, employee recruitment, training and development, performance appraisal and rewarding.

# **Model of human resource management**

- Model of human resource management constitutes a broad collection of features.
- In this section we will discuss only some features salient for software engineering.

# Model of human resource management

*Long term, strategic and proactive in style*

- HR planning is of great significance for managers responsible for locating and managing resources.
- Their duties include
  - Establishing number of staff
  - Maximum utilization of personnel
  - Development and education of employees
  - A projection of future staff needs

# Model of human resource management

## *Commitment to the organization*

- Two approaches
  - Complete control through reliance on the rules governing employment.
  - Empowering employees with status and responsibility for quality production.



# Model of human resource management

## *Commitment to the organization*

- Real challenge is to shift employee attitudes from mere compliance with rules at work to commitment and self motivation.
- Skill is now not much the technical qualifications of employees but their qualities in terms of attendance, flexibility, responsibility, discipline, identification with the company and work rate.

# Model of human resource management

## *Self-management*

- Self management is a form of organizational management based on **self-directed work processes** on the part of an organization's workforce.

# Model of human resource management

## *Self-management*

- There are two variations of self-management
  - All the workers manage the enterprise directly through assemblies
  - workers exercise management functions indirectly through the election of specialist managers.
- The goals of self-management are to improve performance by granting workers greater autonomy in their day-to-day operations, boosting morale, reducing alienation, and when paired with employee ownership, eliminating exploitation.

# Model of human resource management

## *Unitary Perspective*

- The unitary perspective is based on the assumption that the organization is an integrated group of people with single authority/loyalty structure and a set of common values, interests and objectives shared by all members of the organization.
- Management's prerogative is regarded as legitimate, rational and accepted and any opposition to it is seen as irrational.

# Model of human resource management

## *Unitary Perspective*

- There is no conflict between the interests of those supplying capital to the enterprise and their managerial representatives, and those contributing their labor.
- The underlying assumption of this view is that the organizational system is in basic harmony, and conflict is unnecessary and exceptional.

# Model of human resource management

## *Unitary Perspective*

- Managements clings to this view because
  - It legitimizes its authority role by projecting the interests of management and employees as being the same and by emphasizing managements role of governing in the best interest of organization as a whole.
  - It reassures managers by confirming that conflict, where it exists, is largely the fault of the government rather than management.

# **Model of human resource management**

## ***Flexible Work Roles***

- Idea behind flexible work roles is that rather than the organization being centralized , with job roles formally defined, the roles should be flexible with devolution of decision making and a fluid organizational structure.

# Model of human resource management

## *Flexible Work Roles*

- Four main characteristics of the management structure of well established firms are
  - Motivate and retain technical talent
  - Decentralization
  - Looser authority structure
  - Matrix organization



# Model of human resource management

## *Maximum utilization of human resources*

- Human resource utilization is the extent to which available human resources are deployed effectively for the maximum achievement of individual, collective and organizational goals and objectives.
- Examples

# The Software Factory

- A **software factory** is a structured collection of related software assets that aids in producing computer software applications or software components according to specific, externally defined end-user requirements through an assembly process.
- A software factory applies manufacturing techniques and principles to software development to mimic the benefits of traditional manufacturing.
- Software factories are generally involved with outsourced software creation.

# The Software Factory

- Managers can control the process of software development by setting out the three key elements of
  - Methods
  - Tools
  - procedures

# The Software Factory

- Methods refer to the wide range of tasks in building software. These include
  - Project planning and estimation
  - System and software requirement analysis
  - Design of data structure
  - Coding, testing and maintenance

# The Software Factory

- Tools provide automated support for methods.
- They may be integrated so that the information created by one tool can be used by another, thus establishing a system for the support of software development.
- CASE (Computer-aided **software engineering**).

# The Software Factory

- Procedures hold the methods and tools together and control timing by defining a sequence in which methods will be applied.