

# **Engineering Management BMEVITMMB03**

BME Faculty of Electrical Engineering and Informatics, MSc EE and IT Majors  
Economic & human themes

## **AIMS, COMPONENTS AND DIMENSIONS OF MANAGEMENT ACTIVITIES**

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# MANAGING ORGANIZATIONS

Managing organizations means to set up and implement *organizational targets* successfully, including:

- determination and solution of tasks (what and how to do?)
- obtaining and optimal usage of resources (with what?)

**Organization:** activities arranged into a framework, formal relations:  
company, institute, governmental body, civil society, ...

**Targets:** quantitative, qualitative (changes, time-scale)

**Tasks:** operative and strategic (who, what, why, by when, how?)

**Resources:** material (matter, devices, assets, environment ...),  
human (manpower, knowledge, experience ...)  
financial (cash, stocks, bonds, credit ...)  
special (frequency, identifier, space ...)

**Concisely:** *to achieve organizational objectives successfully*

- in business man't: *business success*

- in engineering man't: *innovation success, the success of technologies, products and organizations*

# Mandatory business priorities of managers



[Gartner]

# CHARACTERISTICS OF MANAGEMENT:

- ***Organization dependent:*** the type, size, state and owners of the organization
- ***Environment dependent:*** legal, economic, institutional and market situation (competition or monopoly, conjuncture or recession, ...)
- ***Position dependent:*** the level and character of the managerial job (team leader .... CEO)
- ***Systematic:*** regular procedures, several routines and customs
- ***Relatively unstandardizable:*** individual matters and decisions
- ***Limited rationality:*** necessary to make decision in lack of information, knowledge, time
- ***Complex:*** technical, economic (financial, organizational), legal (laws, regulations) human (psychology, sociology)
- ***Evolving and adaptive:*** learning, growing experience, change of circumstances
- ***Duality:*** combining retention and change in the organization (to keep traditional values and create novel ones)

# COMPONENTS OF MANAGERIAL ACTIVITY

From team leader to chief executive officer (CEO)

„The 7 caps of managers”

## Taking care of people

(training, teaching, consulting, aid, coaching, evaluation...)

## Communication

(oral, written, emotional, image, contacting, negotiation, ...)

## Action

(things to be done, workload and conditions...)

## Administration

(planning, conciliation, reporting, performance certificates...)

## Business, entrepreneurship

(obtaining business, business development, achievements ...)

## Direction

(targets, focusing, change over, undertaking responsibility ...)

## Anxiety

(deadlines, budgets, changes; contingency handling..)

| Team    | Mid | Upper | Top           |
|---------|-----|-------|---------------|
| manager |     |       |               |
|         |     |       |               |
|         |     |       | 15%<br>5...30 |
|         |     |       |               |
|         |     |       |               |
|         |     |       |               |
|         |     |       | 30%<br>25..70 |
|         |     |       | 10%<br>5...30 |

**MANAGEMENT:** executes organizational targets *successfully*

| SUCCESS-FULNESS           | Effectiveness   | Efficiency   |
|---------------------------|---|--|
| Short-time,<br>at present | <b>P</b><br><b>PRODUCTIVE</b><br>Performance<br>(fulfil demands, functions) | <b>A</b><br><b>ADMINISTRATIVE</b><br>Systematization<br>(organize, regulate) |
| Long-time,<br>in future   | <b>E</b><br><b>ENTREPRENEURIAL</b><br>Proactivity<br>(foresight + venture)  | <b>I</b><br><b>INTEGRATIVE</b><br>Cooperation<br>(team building)             |

**PAEI ability in the management team!**

# Contribution of company's functions to successfulness

| SUCCESS-FULNESS           | Effectiveness  | Efficiency   |
|---------------------------|--|--|
| Short-time,<br>at present | <b>P</b><br>Manufacturing<br>Operation<br>Sales<br>Service | <b>A</b><br>Accounting<br>Informatics<br>Rule making<br>Organization |
| Long-time,<br>in future   | <b>E</b><br>Marketing<br>R & D & I<br>Entrepreneurship     | <b>I</b><br>HR management<br>Managerial culture<br>Strategy          |

**PAEI ability in the management team!**

# Self-assessment: our strengths and weaknesses

| SUCCESS-<br>FULNESS<br>COMPONENTS | Effectiveness   | Efficiency  |
|-----------------------------------|---|---|
| Short-time,<br>at present         | <b>Pp-</b><br><b>PRODUCTIVE,<br/>FUNCTIONAL</b><br>Achiever         | <b>Aa-</b><br><b>ADMINISTRATIVE,<br/>RULE-MAKING</b><br>Organizer |
| Long-time,<br>in future           | <b>Ee-</b><br><b>ENTREPRENEURIAL,<br/>PROACTIVE</b><br>Entrepreneur | <b>li-</b><br><b>INTEGRATIVE,<br/>COOPERATIVE</b><br>Team builder |

**PAEI ability in the team!**



# THREE DIMENSIONS OF MANAGEMENT

## Managerial functions (tasks, roles)

- planning, organization
- rule-making, coordination
- supervision, evaluation
  - exercise power
  - PR, team-building
- business development
- strategy...

Support one or more components of successfulness

Depend on managerial style and culture, too

## Managerial situations (type and state of company, legal and economic environment, condition of decisions)

- establish't and dev't of enterprise
- operation, rationalization
- transformation, fusion
- crisis management
- winding-up...

Change along the life-cycle of organization

## Managerial tools (methods, procedures)

- decision-making
- strategic planning
- business planning and monitoring
- HR development
- marketing, finance
- communication
- IT support

## SOME SIMPLE MANAGERIAL TOOLS

**Pareto method:** classification of factors/to do list elements according to their importance (A, B and C): few important A, more less important B,....

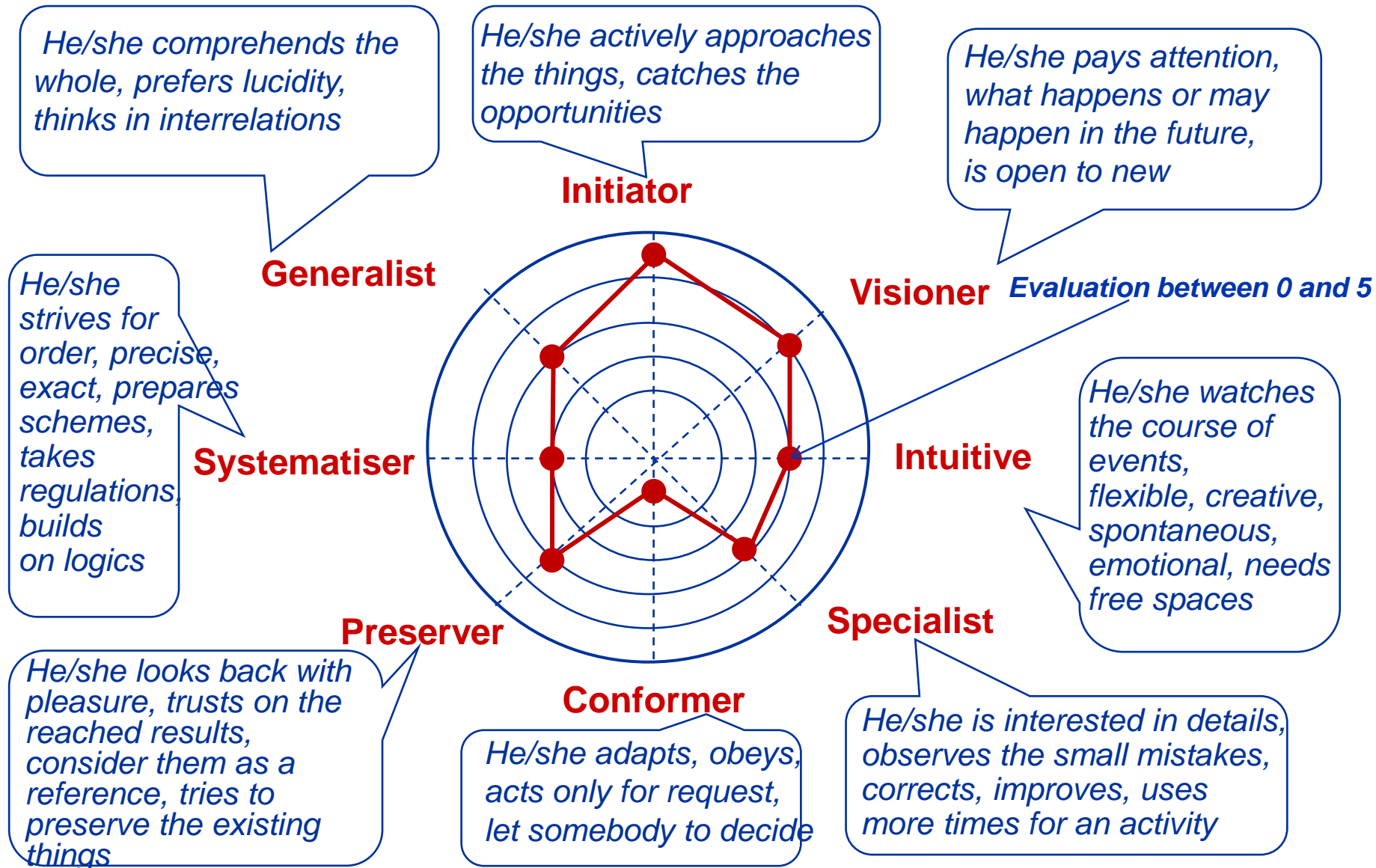
**PEST/STEP method:** structuring for macro investigation: separation of political (P), economic (E), social (S) and technical (T) aspects. Lately legal (P), demographic (S) and environment aspects are also identified and separated.

**Six thinking caps method (Edward de Bono):**  
to promote parallel way of thinking (everybody approaches the same topic from each side), to arrange discursive ideas:

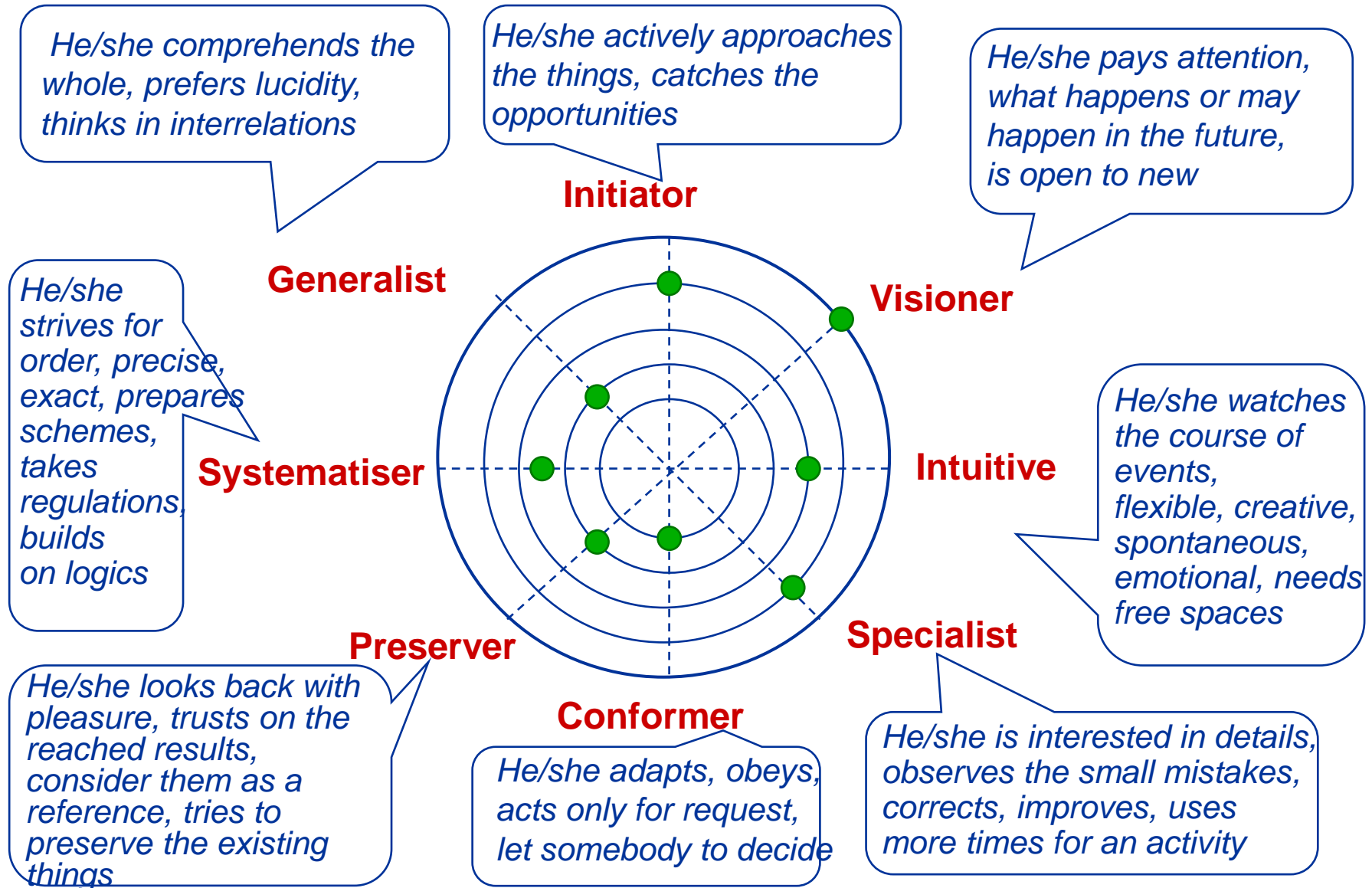
- **White cap:** alignment of facts, data, without emotion
- **Red cap:** emotions, feelings, affective aspects
- **Green cap:** creativity, collecting ideas, alternatives, opportunities
- **Yellow cap:** looking for values, benefits, positive side
- **Black cap:** identifying threats, difficulties, critical aspect
- **Blue cap:** global, overall way of thinking; harmonization, summing (wrap) up

*The order of caps is not fixed, return is possible.*

# Work-style analysis: Vogelaue's wheel method



# What is my boss / colleague / a research fellow / a project manager like?



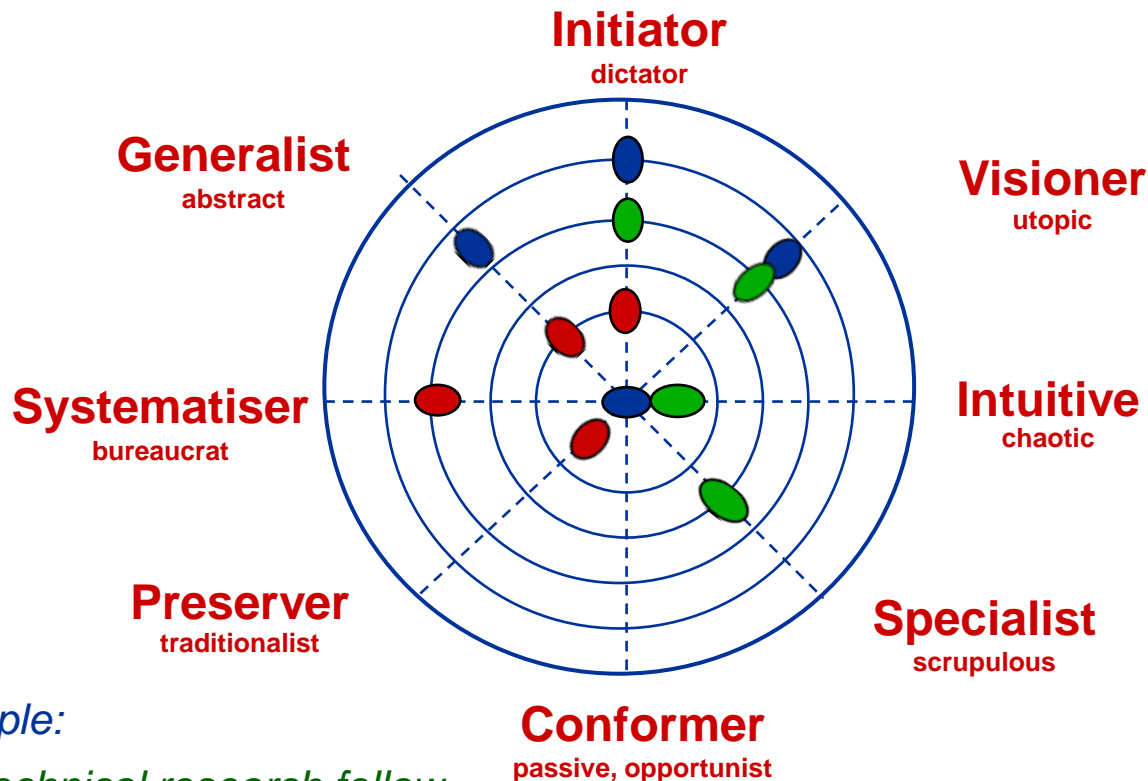
# Vogelauer „wheel” work-style analysis: evaluation

Opposite pairs are along axis, their subtraction measures their *balance*.

Highest values are extremes: dictator, utopist, chaotic, scrupulous, passive...

Application: Own wheel (self-image), for fellow-student, friend (mirror-image)

Aim: personality development (diagnose, direction setting), team building



Example:

● Technical research fellow

● Project manager

● Top manager