



MANAGEMENT FOR CHEMICAL ENGINEERING (0905401)  
05 – EXTERNAL ENVIRONMENT AND ORGANIZATIONAL CULTURE

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## Planning Ahead — Key Takeaways

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- Identify key elements in the external environment of organizations.
- Discuss how organizations pursue value creation and competitive advantage in a dynamic environment.
- Describe how organizations pursue innovation in a dynamic environment.
- Explain key issues of sustainability as an environmental priority.



## Outline

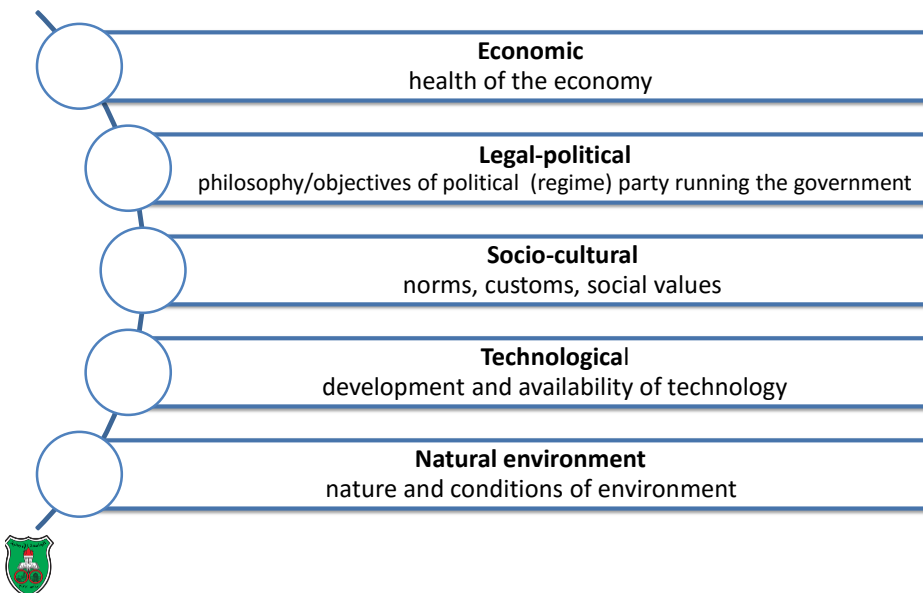
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- The External Environment
  - Economic conditions
  - Legal-political conditions
  - Sociocultural conditions
  - Technological conditions issues
  - Natural environment conditions
- Environment and Value Creation
  - Value creation and competitive advantage
  - Uncertainty, complexity, and change
- Environment and Innovation
  - Types of innovations
  - The innovation process
  - Disruptive innovation and technology
- Environment and Sustainability
  - Sustainable development
  - Sustainable business
  - Human sustainability

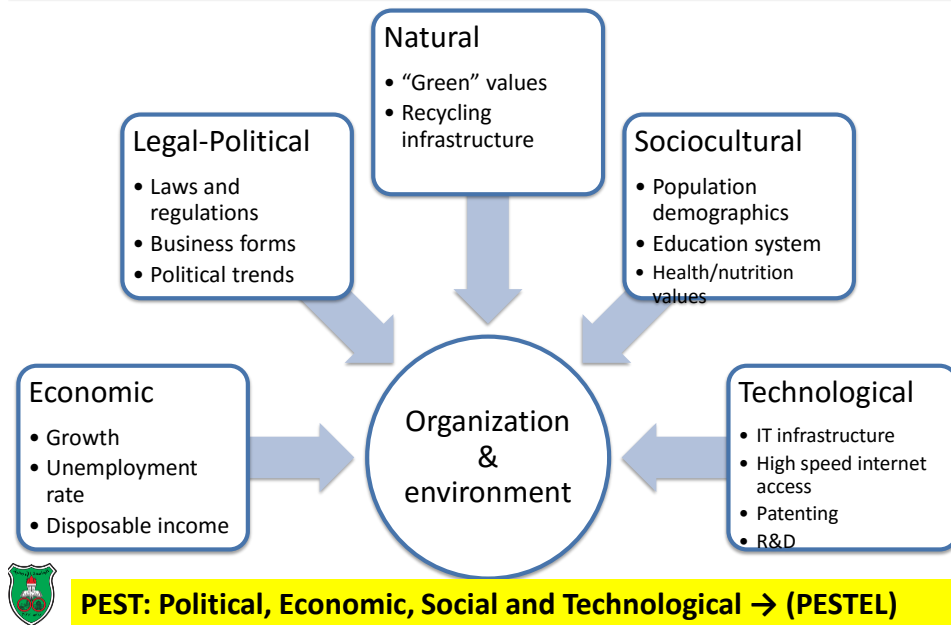


## General Environments of the Organization

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## Sample Elements in the General Environments of Organizations



## Economic Conditions

- Overall health of economy in terms of financial markets, inflation, income levels, and job outlook.
- Offshoring – outsourcing of jobs to foreign locations.
- Reshoring – return of jobs from foreign locations.



## Legal-Political Conditions

- Laws and regulations, government policies, and the objectives of political (regime) parties.
- vary from one country to the next.
- Internet censorship - deliberate blockage of public access to information posted on the Internet.



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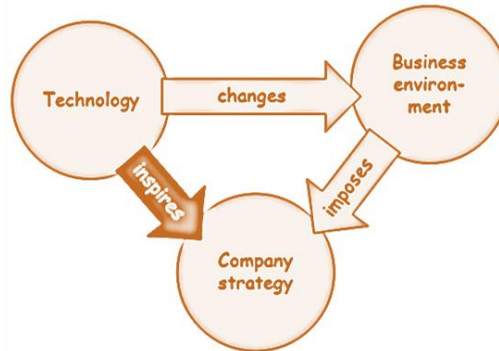
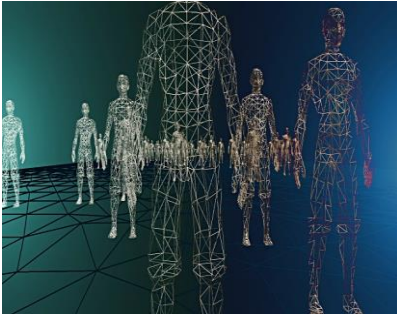
## Sociocultural Conditions

- Diversity issues relating to educational opportunity, access to technology, housing/job options.
- Norms, human rights, demographics, and societal values.
- Generational cohorts -- people born within a few years of one another and who experience somewhat similar life events during their formative years.



## Technological Conditions

- Social media, features and “apps” on smart phones.
  - Brings both opportunities and problems.
- Maturity of technology in industry (new or mature).



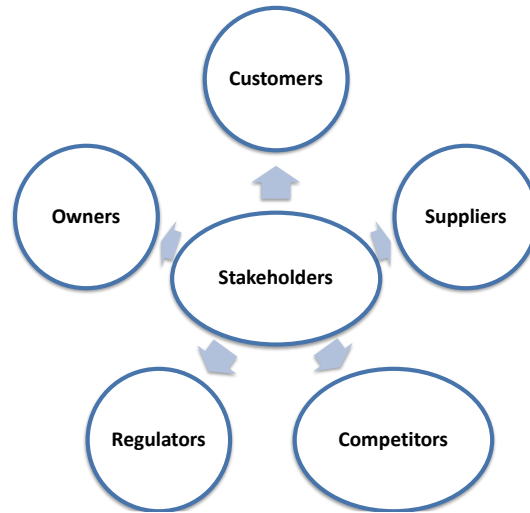
## Natural Environment Conditions

- Nuclear plant failure, oil spill, hurricane.
- “Carbon neutral,” “green,” “sustainability”.
- Sustainable business – meets both the needs of customers and protects the natural environment.

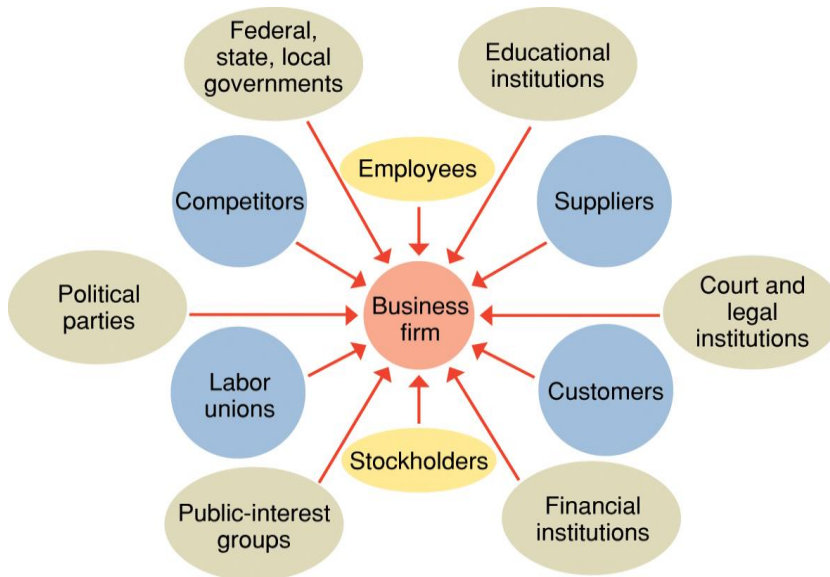


## Environment and Value Creation

- The specific (task) environment - actual organizations, groups, and persons with whom an organization interacts and conducts business
- Includes important **stakeholders** such as:



## Multiple Stakeholders in the Environment of an Organization



## Competitive Advantage

- A core competency that clearly sets an organization apart from competitors and gives it an advantage over them in the marketplace.
- Companies may achieve competitive advantage in many ways, including:

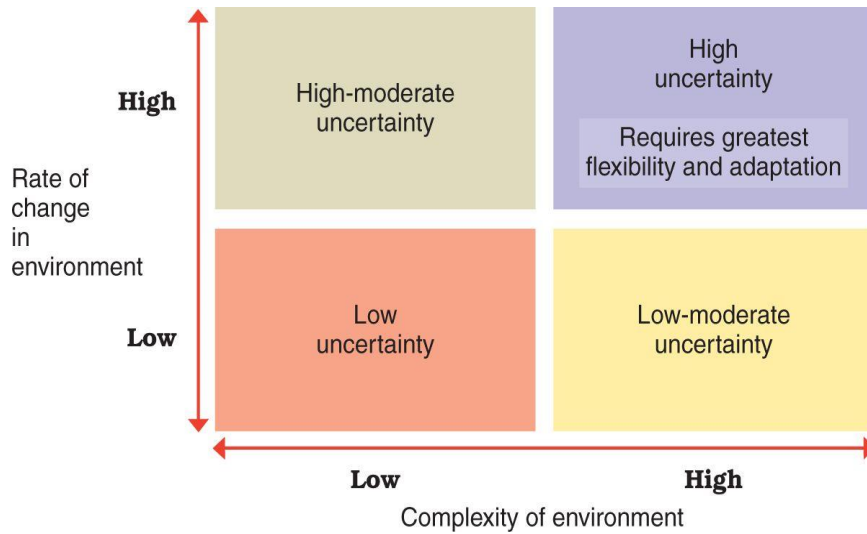


## Environmental Uncertainty

- A lack of complete information regarding what exists and what developments may occur in the external environment.
- Two dimensions of environmental uncertainty:
  - Degree of complexity.
  - Rate of change.

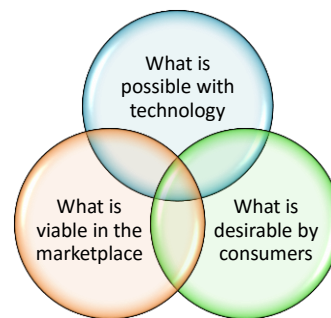


## Dimensions of Uncertainty



## Environment and Innovation

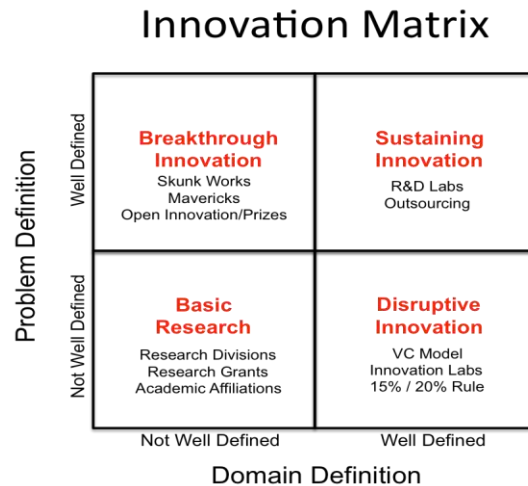
- Innovation - process of putting new ideas into practice
- Business innovations
  - Product innovation
  - Process innovation
  - Business model innovation





## Innovation Matrix

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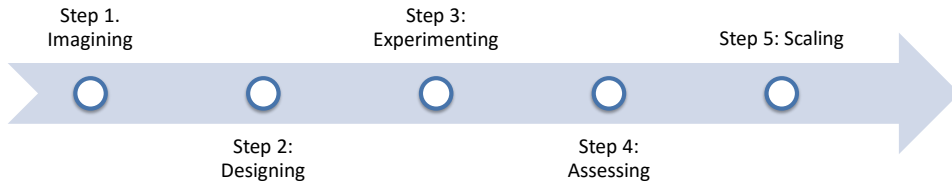
## Social Business Innovations

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- Find ways to use business models to address important social problems e.g. poverty or unemployment or education etc.
- New **strategies, concepts, ideas** and **organizations** that meet the social needs of different elements which can be from working conditions and education to community development and health — they extend and strengthen civil society.
- Social innovation includes the social processes of innovation, such as **open source methods** and techniques and also the innovations which have a social purpose — like **online volunteering, microcredit, or distance learning**.



## The Innovation Process

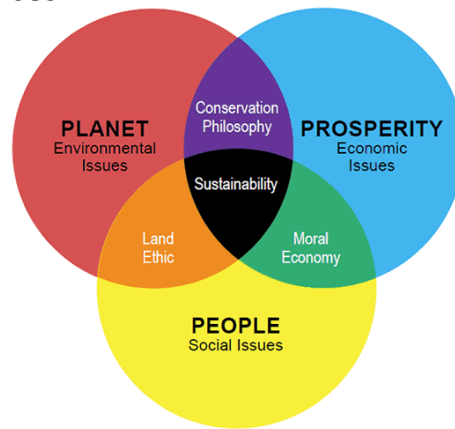


Disruptive innovation – creates products/services that become so widely used that they largely replace prior practices and competitors



## Environment and Sustainability

- Sustainability – commitment to protect the rights of present and future generations as co-stakeholders of present-day natural resources.



## Social Impact

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- Demographic – changes to population numbers, distribution.
- Cultural – changes to customs, traditions and values.
- Community – changes to cohesion, relationships etc.
- Socio-psychological – changes to quality of life and well being.



## Health Impact

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- Communicable disease.
- Non-communicable disease.
- Nutrition.
- Injury.
- Psychosocial disorder and loss of well-being.



## Economic Impact

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- Duration of construction and operation.
- Workforce requirements for each period.
- Skill requirements (local availability).
- Earning.
- Raw material and other input purchases.
- Capital investment.
- Outputs.
- Characteristics of the local economy.



## Sustainable Development

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- Makes use of environmental resources to support societal needs today while also preserving and protecting them for future generations.



## Sustainable Development (J. L. Schnoor)

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- Meeting the needs of the present without compromising the ability of future generations to meet their own needs. Brundtland Commission (1987): Our Common Future
  - Intergenerational equity.
  - A creative process and systems perspective whereby we improve manufacturing, services, and the environment.
  - A long-term viewpoint where natural capital is valued highly and substitution and innovation are encouraged.



## Sustainability Principles

(adapted from Herman Daly, A Steady State Economy)

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1. One does not use renewable resources at a faster rate than their sustainable yield (renewable: solar, wind, biomass, forests, fish...).
2. One does not use non-renewable resources faster than the rate of substitution for that resource.
3. Do not exceed the assimilative capacity (natural self purification capacity) of the earth and that pollutants do not accumulate for future generations.



## Environmental Capital

- Natural resources used to sustain life and produce goods and services for society:

<b>C</b>	<b>Carbon</b>	Reduced emissions of greenhouse gases, including carbon dioxide (CO <sub>2</sub> ), methane (CH <sub>4</sub> ), nitrous oxide (N <sub>2</sub> O), and chlorofluorocarbons (CFCs)
<b>L</b>	<b>Land</b>	Reduced landfilling of solids; wetland recovery; reduced soil contamination
<b>E</b>	<b>Energy</b>	Energy savings and renewable power and fuel production
<b>A</b>	<b>Air</b>	Reduced air emissions of non-greenhouse gas pollutants typically from fossil fuel combustion, such as oxides of sulfur (SO <sub>x</sub> ) and nitrogen (NO <sub>x</sub> ), total organic gas (TOG), toxic metals, and particulates
<b>N</b>	<b>Natural Resources</b>	Water savings, clean water production, reduced water contamination, mineral savings, forestry and agricultural improvements, and other natural resource benefits



## The P<sup>3</sup> Principle of Profit

- Three P's of organizational performance: People, Planet and Profit (Prosperity)



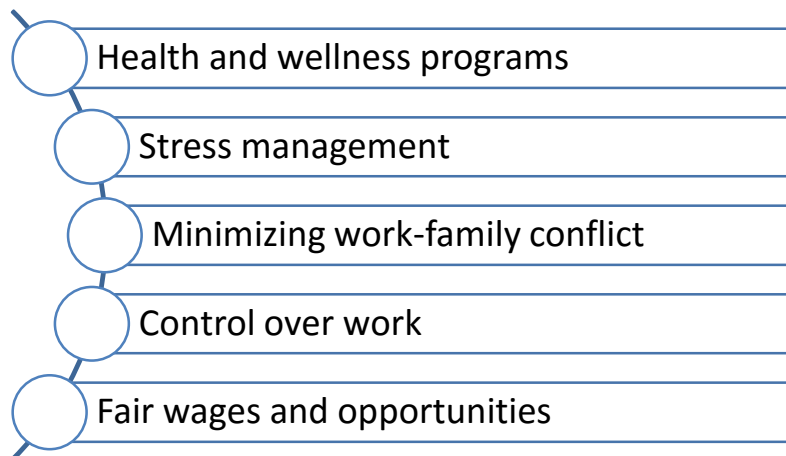
## Sustainable Business

- Operates in ways that meets the needs of consumers while protecting the environment.
- Sustainable/green innovations – help reduce an organization's negative impact or enhance positive impact on the natural environment.



## Human Sustainability

- Concern for the effect of management practices on employee physical and psychological well-being.





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