**Logic Model**

**Goal**

To conduct an industry analysis in the field of social robot to determine whether there is the potential to growth exponentially in global marketplace. Summarise all the findings in the industry analysis report.

**Effects**

* Help corporation and scholars to realise the potential market value and opportunities of social robots
* Promote the study and adoption of social robots in existing and potential areas

**Outputs**

* Definition of social robots
* Brief historical outline
* Explanation of technologies and application
* Show price development, shipped units, company profiles and their IP
* Show how policies are varying in different countries
* Indicate potential development of social robots

**Activities**

* Define social robots
* Describe historical evolution
* Research on pricing, shipment data and companies
* Identify the leading key technologies and potential application
* Review government regulations over different regions
* Analyse potential development and threads

**Inputs**

* Scientific publications
* Company websites
* Newspaper and magazines
* Government authorities
* Non-government organisations
* Statistics databases
* Online tools  
  - Patent Search Engine  
  - Google Trend
* Software  
  - NetLogo

Definition **of Social Robot**

Social robots are embodied agents that are part of a heterogeneous group: a society of robots or humans. They are able to recognize each other and engage in social interactions, they possess histories (perceive and interpret the world in terms of their own experience), and they explicitly communicate with and learn from each other.

K. Dautenhahn, A. Billard, Bringing up robots or—the psychology of socially intelligent robots: From theory to implementation, in: Proceedings of the Autonomous Agents, 1999.

Concepts of Social Robots

**Socially evocative.** Robots that rely on the human tendency to anthropomorphize and capitalize on feelings evoked when humans nurture, care, or involved with their “creation”.

**Social interface.** Robots that provide a “natural” interface by employing human-like social cues and communication modalities. Social behavior is only modeled at the interface, which usually results in shallow models of social cognition.

**Socially receptive.** Robots that are socially passive but that can benefit from interaction (e.g. learning skills by imitation). Deeper models of human social competencies are required than with social interface robots.

**Sociable.** Robots that pro-actively engage with humans in order to satisfy internal social aims (drives, emotions, etc.). These robots require deep models of social cognition.

**Socially situated.** Robots that are surrounded by a social environment that they perceive and react to. Socially situated robots must be able to distinguish between other social agents and various objects in the environment.

**Socially embedded.** Robots that are: (a) situated in a social environment and interact with other agents and humans; (b) structurally coupled with their social environment; and (c) at least partially aware of human interactional structures (e.g., turn-taking).

**Socially intelligent.** Robots that show aspects of human style social intelligence, based on deep models of human cognition and social competence

Terrence W. Fong, Illah Nourbakhsh , and Kerstin Dautenhahn tech. report CMU-RI-TR-02-29, Robotics Institute, Carnegie Mellon University, December, 2002

Characteristic of Social Robots

* express and/or perceive emotions
* communicate with high-level dialogue
* learn/recognize models of other agents
* establish/maintain social relationships
* use natural cues (gaze, gestures, etc.)
* exhibit distinctive personality and character
* may learn/develop social competencies

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Target Audience

1. Corporation
2. Scholars