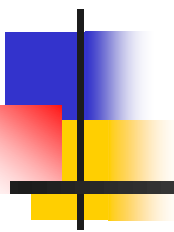# Design Management: Some Implications of Affect-based Theories of Cognition
BISCA 2002

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BISCA 2002 MittelEuropa Foundation, Univ. of Trento

Background

- Several projects in various stages involving:
  - Dr. Bryn Tellefsen (NHM/BI, Norway)
  - Dr. Judith Gregory (Infomatics, Uni of Oslo)
  - Dr. Nigel Cross (Design, Open University)
  - Dr. Peter Love (MIS, ECU)
  - Dr. Suzette Worden (Design, Curtin)
  - Dr. Scott Gardner (Management, ECU)
  - Dr Paul Omaji (Uni of Darwin)
  - Trudi Cooper (Youth Work, ECU)
  - Dr. Craig Standing (MIS, ECU)
  - Dr. Gordon Parkinson (Nano-chemistry, Curtin)

Projects: Affective Cognition and Design Management

- Managing human issues to reduce rework in design activities
- Functioning and management of multidisciplinary design teams
- Designing partnerships between Community Organisations and Criminal Justice Agencies
- Designing organisations
- Managing the designing of public space
- Affective issues in virtual teams designing information systems
- Managing government Youth Work services policy to 2015
- Developing Australian national design infrastructure
- Tacit skills in designing molecules with specific properties
- Managing roles of designers in innovation programs
- Developing a cross disciplinary degree in designing that includes design management

Recent changes in research landscape

- Five sources of empirical data (previously only two):
    - *Observation of external behaviours/ events/ processes* (from behavioural theories, decision making theories etc)
    - *Reports of subjective experiences* (from reflection in action theories, narrative theory, etc)
    - *Correlation with researchers personal observations*
    - *Correlation across theories* (meta-theoretical coherence)
    - *New scientific knowledge of human internal processes* (mainly from cognitive neuro-sciences etc)

Area of Exploration - 1

- Multiple parallel dimensions of human emotion, feeling and consciousness systems (Mainly based on Damasio's approach). Foci of interest are:
  - Designers internal and external processes
  - Collaboration between designers and others
  - Designers relationships with real objects, thoughts of objects, and theoretically codified objects (inc generalised theories)
  - Managers' and policy makers' processes when managing design activities
  - Effects due to differences in domain and knowledge

General background: emotions, feeling and values

- Choices, responses, thinking and activity are 'whole body' processes that involve emotions, feelings and values

- Emotions, feelings and values (affective processes) are more primary than, and the basis of, 'thinking'

- Emotion, feelings and values depend on:
  - Representations of internal milieu and visceral processes
  - Representations of musculo-skeletal dynamics
  - Representation of 'fine touch' processes
  - Second and third order neural mappings of these along with representations of internal and external 'objects' with their affective dispositional associations

Emotion and Feeling Systems - 1

Primitive Organism

Sensing system (outside environment)
Sensing system (inside organism)
Movement system
Digestion system
Reproduction system
Processes that connect systems and result in survival, continuity, learning and development
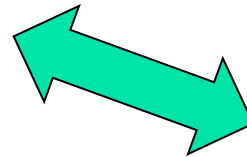No brain needed.

Emotion and Feeling Systems - 2

Move away from? Attack?
Eat? Mate with?

Primitive
Organism A

Primitive
Organism B

Biological changes due to
distant interactions with B
result in response of A to B
Do not require a 'brain'.
These affective processes
are origin of 'brain systems'

Damasio and consciousness

- Damasio draws attention to roles of consciousness in cognition and differentiates:
  - Proto-self
  - Core consciousness
  - Extended consciousness
- Each depends heavily on emotions and feelings

Proto-self

- The proto-self is the basis of all other forms of consciousness

- The proto-self is 'a coherent collection of neural patterns which map, moment by moment, the state of the physical structure of the organism in its many dimensions'

- Proto-self has no powers of perception, holds no knowledge, does not involve language.

- Humans are not conscious of the proto-self

Core consciousness

- Core consciousness occurs when the brain forms an imaged, non-verbal second-order account of how the organism is causally affected by the processing of an object.

- The imaged account is based on second-order neural patterns generated from structures capable of receiving signals from other maps which represent the organism (proto-self) and the object.

- Core consciousness emerges as:
  - A *feeling* of *knowing* relative to the mental images of the object to be known
  - Enhancement of the images of the object

Extended Consciousness

- Extended consciousness is what is normally referred to as 'consciousness'

- It uses core consciousness via two 'tricks':
  - Converts autobiographical self experiences into 'objects' and processes them like any other object (with emotions and feelings).
  - Holds for extended time, simultaneous multiple images representing autobiographical self and objects 'bathed in the "feeling of knowing" that arises in core consciousness'
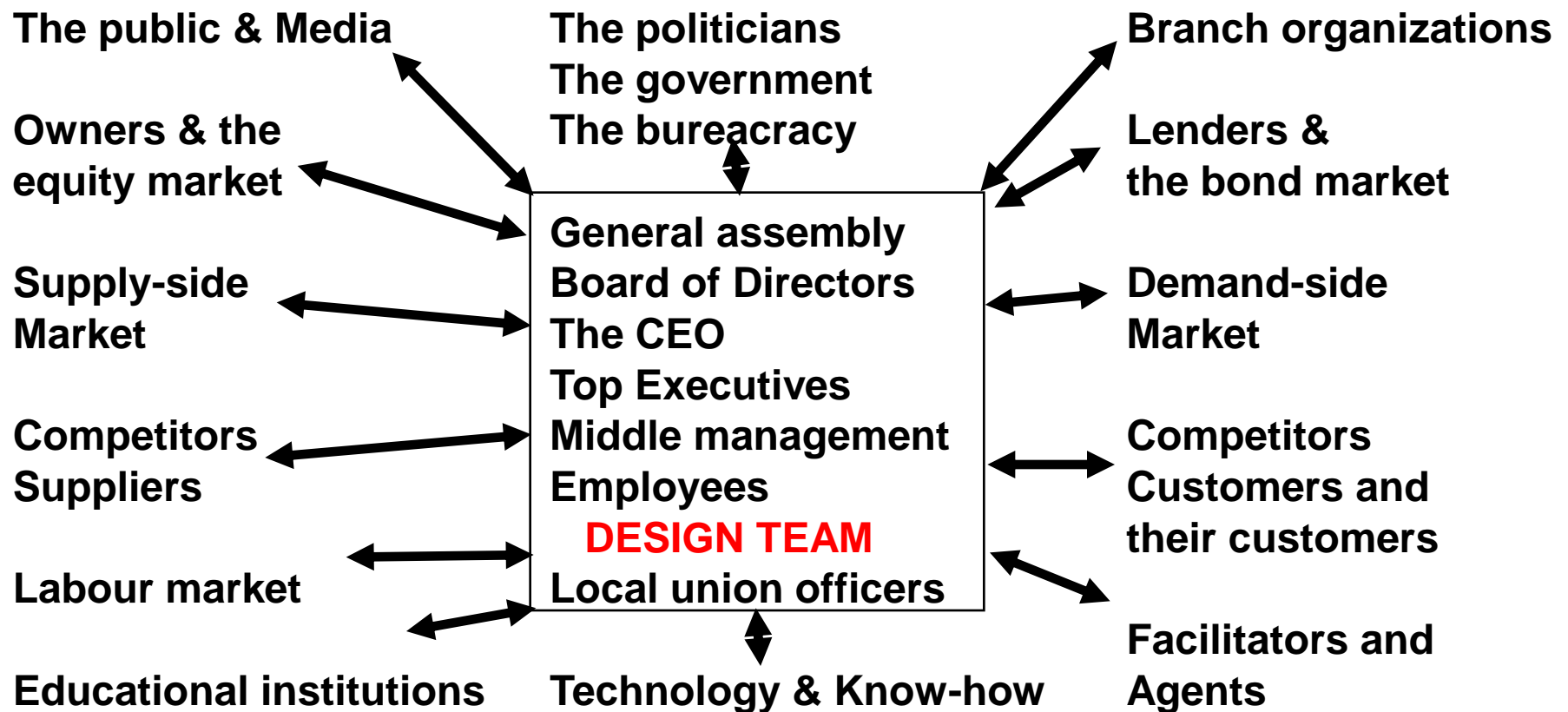
Area of Exploration – 2

- Designing and Design management defined in terms of Constituent Market Orientation (CMO) (Mainly Tellefsen, Olaisen).

- Foci are on ways the underlying physiologically-based affective cognition and CMO of individuals, groups, organisations and management shape success and failure in design, and organisational and learning outcomes.

Design Management Constituencies

The public & Media

The politicians
The government
The bureacracy

Branch organizations

Owners & the equity market

Lenders & the bond market

Supply-side Market

Demand-side Market

Competitors
Suppliers

Competitors
Customers and their customers

Labour market

Educational institutions

Technology & Know-how

Facilitators and Agents

General assembly
Board of Directors
The CEO
Top Executives
Middle management
Employees
DESIGN TEAM
Local union officers

CMO and Affective Cognition

- At root, CMO is a learning theory

- Its basis lies in the ways that human physiology impacts on how individuals' attention and orientations shape their responses and values and influence personal, group and organisational success (or otherwise).

Area of Exploration – 3

- Identifying how physiological processes explain or contradict contemporary theories of design cognition.

- Working towards the inclusion of physiological substrates and theories of affectively-based design cognition in theories of designing relating to individuals, groups, collaboration, management, organisations, innovation, and national policy and infrastructure

New theory developments

- Development of meta-theory structures

- Terminology to help build theoretical coherency across domains

- An extension of the System Dynamic method through the use of layering of System Dynamic graphs

Contact details

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