



Energy research Centre of the Netherlands

## Setting a technological standard: which factors can organizations influence to achieve dominance?

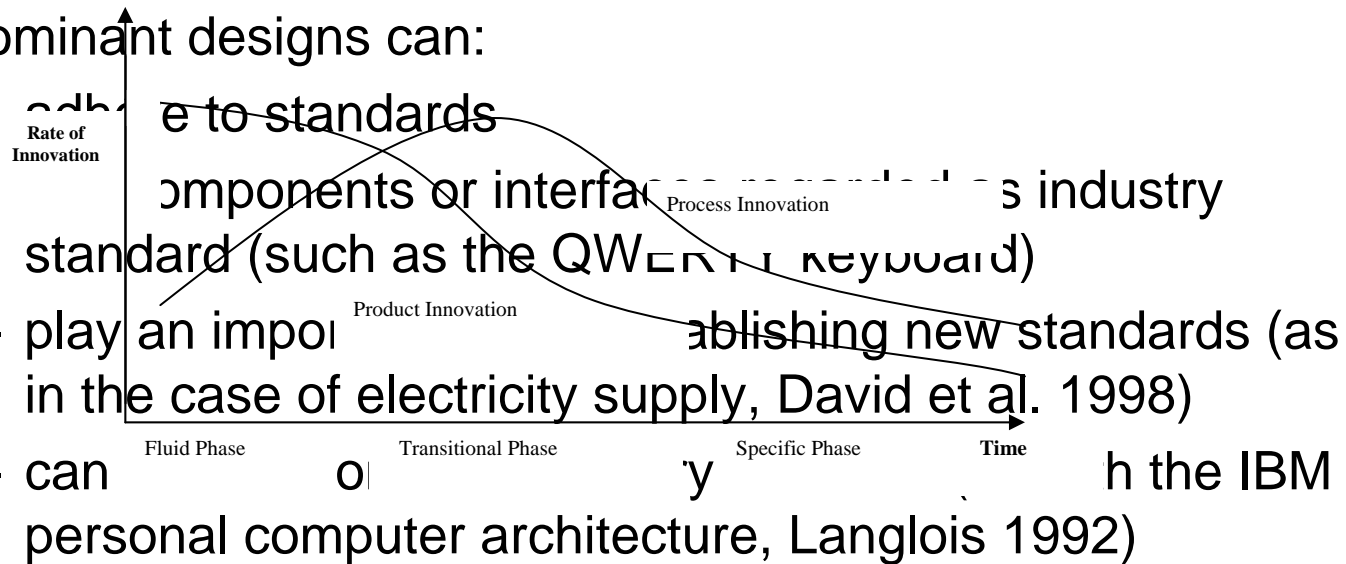
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# Introduction

- Dominant designs: assembled products

- Dominant designs can:



- Organization perspective

## Content of the presentation

- Problem

**How many factors influence the emergence of a dominant design?**

- Contributions

- Theoretical

**What percentage of these factors can be influenced by organizations?**

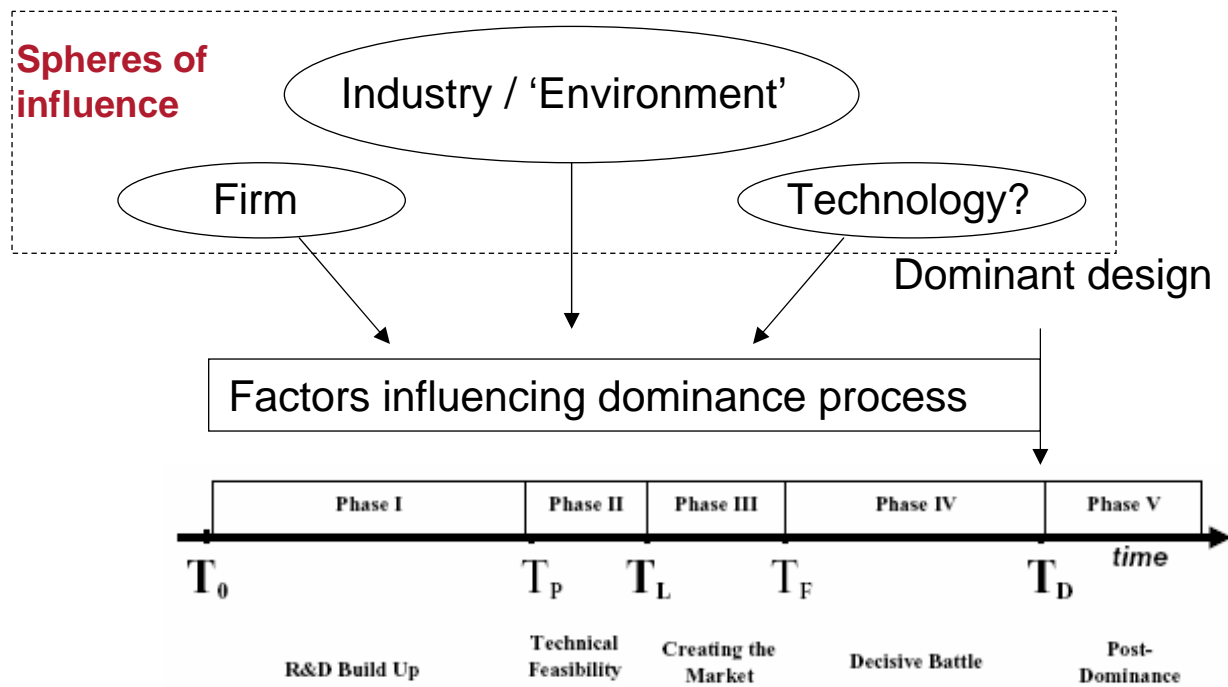
A detailed historical painting of a large-scale battle, likely the Battle of Tewkesbury, showing a dense field of soldiers on foot and horseback engaged in combat under a cloudy sky with smoke and fire.

**Create overview**  
**Identify strategic options**

**Toshiba lost appr. \$ 1 billion on losing the format war**



# Grouping factors: spheres of influence





	<b>Firm</b>
Inherent	Firm size
	Firm reputation and credibility
	Firm's complementary assets
	Installed base
	Experience in related technologies (pre-entry experience)
	Amount of core capabilities
	Level of absorptive capacity (learning)
Strategic	Entry timing, window of opportunity
	Market introduction (aggressive marketing and promotion)
	Need for a killer application
	Pricing
	Licensing and building relationships with complementors (business networks/alliances)
	Licensing policy: open or closed standard
	Superior understanding of licensee needs and requirements
	Marketing and PR to manage expectations
	Product proliferation
	Coevolutionary contracting (anticipating requirements to pre-empt scarce resources)
	Dominance in specific geographic markets
	Alliance with large organization to sponsor technology
	Slight information advantages
	Gateway technologies (adapter)
	Availability of complementary goods
	Taking into account pattern of technology adoption in earlier periods
Other	Chance/idiosyncrasies
	<b>Technology</b>
	Technological superiority
	Increasing returns to adoption
	Interoperability of the technology
	Technological performance trajectories
	Rate of technological change
	Type of technological changes
	Enabling technologies
	Installed base
	Network effects/externalities (increasing returns)
	Switching cost
	Chance/idiosyncrasies
	<b>Environment/Industry</b>
	Industry regulation (public policy) and government intervention
	Regime of appropriability
	Availability of technology sponsors
	Level of cooperation vs. competition
	Capability of competitors
	Amount and quality of second sources (imitators) in organizational community
	Availability of complementary goods
	Specific characteristics of the technological field
	Gateway technologies (adapter)
	Network effects/externalities (increasing returns)
	Chance/idiosyncrasies

24 firm related factors

16 strategic factors

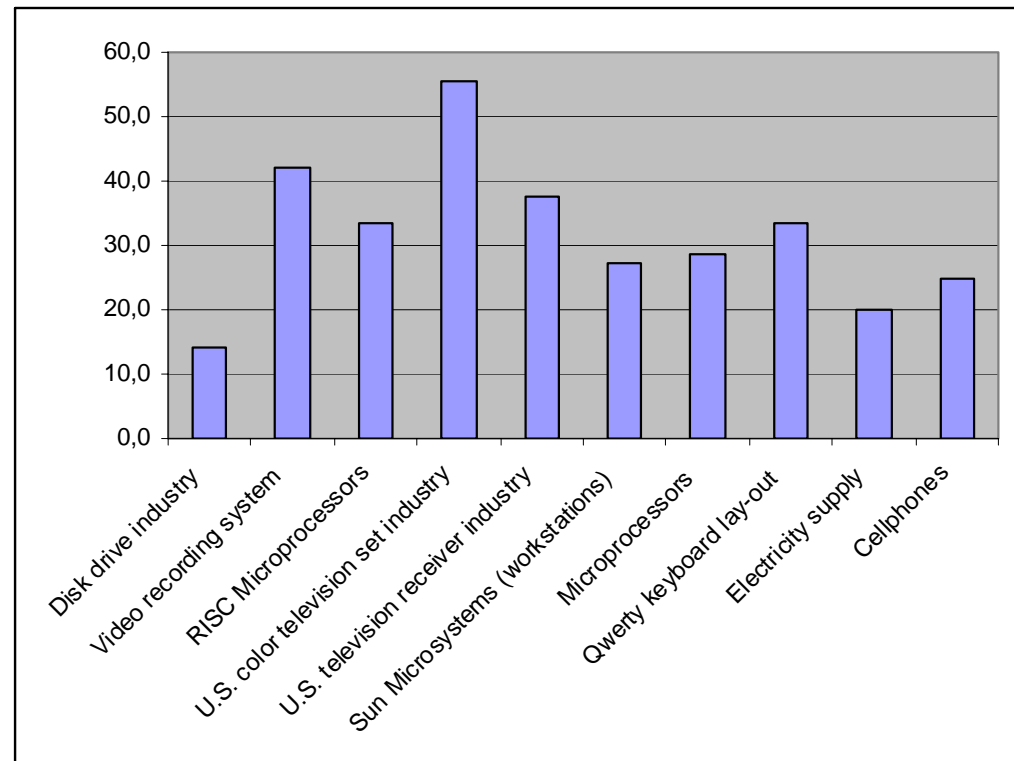
## Overview of factors

46 factors

- From literature study 35% of the factors lie within an organizations control span

## Firm influence in practice

- Selection of 10 cases
- Variation lies between 14% - 56%
- Average of 32%
- According to T-test population mean lies within a 95% confidence interval of 23%-40%
- Theoretical mean lies within confidence interval: no implications



## Contributions - theoretical

- the extent to which organizations (i.e. firms, and research institutes) can influence dominant design emergence
  - from literature we deduced that 35% of the factors that influence dominant design emergence can be influenced by organizations
  - from historical case studies we found that an average of 32% of the factors was influenced by organizations
- identified 16 factors that can be influenced by organizations (strategic factors), thereby more than doubling the amount previously listed by a single study
- extensive overview of factors influencing dominant design emergence: initially 40 factors identified, which increased to 46 after allocating several factors to different spheres of influence
- establish a basic principle concerning the broadly defined fields of influence that affect the dominance process (spheres of dominance)
- contribute to the discussion to which domain a factor belongs to

## Contributions – practical; Technology Transfer at ECN

- Those res  
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enable



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**Thank you for your attention**

**Questions?**