Aalto University
School of Business

Data-Driven Business Session #9

Organizational culture, industry-level inertia, and barriers to digitalization

Monday 6.2.2017

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Agenda

Why do data-driven business practices challenge existing ways to organize and manage work?

Guest lecture: Outi Herkepeus

Magenta Advisory ("By BearingPoint")

Understanding data-driven practices and cultural change: the case of Six Sigma at 3M?

Key changes at organizations?

Measuring processes and performance	Controlling processes with data	Reducing the required workforce
Myopic and reactive company		
Few simple measures for outputs	Experienced managers supervise processes	Learning drives greater employee productivity
		
Rich digital representations of key inputs and outputs Smart aggregate metrics	Digital control of tasks Automated feedback Key decisions made by algorithms	Robots & software robots Micro-outsourcing Self-service design
Holistic and proactive company		

Q: What do managers need to do differently?

Key things to achieve in digital organization

Pace

- Delegate power

Collaboration

- Dismantle silos
- Move away from traditional performance metrics

Transparency

- Shared view through data both internally and with partners

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Source: Rowles & Brown (2017) Building Digital Culture. Kogan Page. (Similar content also in many other books)

What do practitioner books say on barriers to digitalization?

Things that companies lack:

1. **Management buy-in**
2. **IT infrastructure**
3. **Skills**
4. **Suitable team structures**

Source: Rowles & Brown (2017) Building Digital Culture. Kogan Page. (Similar content also in many other books)

Technology has always shaped management

Technology revolution	Organizational paradigm	Dominant management model and key elements	Management concept search terms	Emergence*
Steam power and railways	Professionally managed firm: The rationalized management of a geographically dispersed enterprise	Revolutionizing cycle: Line and staff The establishment of specialized line and staff managers, unrelated to the owner, who would responsibly administer a large, complex firm	Staff and line Line and staff Organization chart	1861 1869 1889
		Balancing cycle: Industrial betterment The addition of a social function among the staff responsible for improving workers' living and working conditions	Employee benefit† Industrial betterment Welfare work Welfare secretary†	1895 1899 1906 1913
Steel and electric power	Factory: The unitary, centralized organization structure	Revolutionizing cycle: Scientific management Time and motion study, incentive wages, and workflow analysis as ways to optimize and accelerate production in a facility	Scientific management Taylorism Standardization of methods	1896 1900 1914
		Balancing cycle: Human relations Making line managers and staff specialists responsible for responding to the alienation induced by rationalized workstation operations	Human relations Group dynamics Personnel counseling	1929 1945 1945

Source: Bodrozic, Z., and P.S. Adler (2018) The Evolution of Management Models: A Neo-Schumpeterian Theory. *Administrative Science Quarterly*

Technology revolution	Organizational paradigm	Dominant management model and key elements	Management concept search terms	Emergence*
Computers and telecommunication	Network: Linking and rationalizing processes across internal and external boundaries	Revolutionizing cycle: Business process Redesign of business processes up and down the value chain, redrawing and bridging internal and external boundaries	Business process redesign	1991
			Outsourcing	1991
			Horizontal organization†	1991
			Process improvement	1991
			Business process reengineering	1992
			Core competencies	1993
			Business model†	1994
			Interfirm network†	1995
			Supply-chain management	1996
		Balancing cycle: Knowledge management The cultivation of communities of practice in order to regain, retain, or improve the innovation capacity of dispersed employees.	Knowledge management	1996
			Intellectual capital	1997
			Knowledge repositor†	1998
			Communit† of practice	1998
			Agile (“NEAR/5 software”)	1998
			Scrum (“NEAR/5 software”)	2005

The role of big data, mobile communications & artificial intelligence uncertain

Controlling workers through algorithmic management

- Scalable micro-planning through algorithms

Autonomous teams of very highly paid specialists

- Leveraging creative outputs through digital replication and channels
- Digital tools allow low-cost prototyping

Organizing through platforms

- Digital innovation -- constant changes and rapid diffusion
- Generative stacks of technologies

Outi Herkepeus

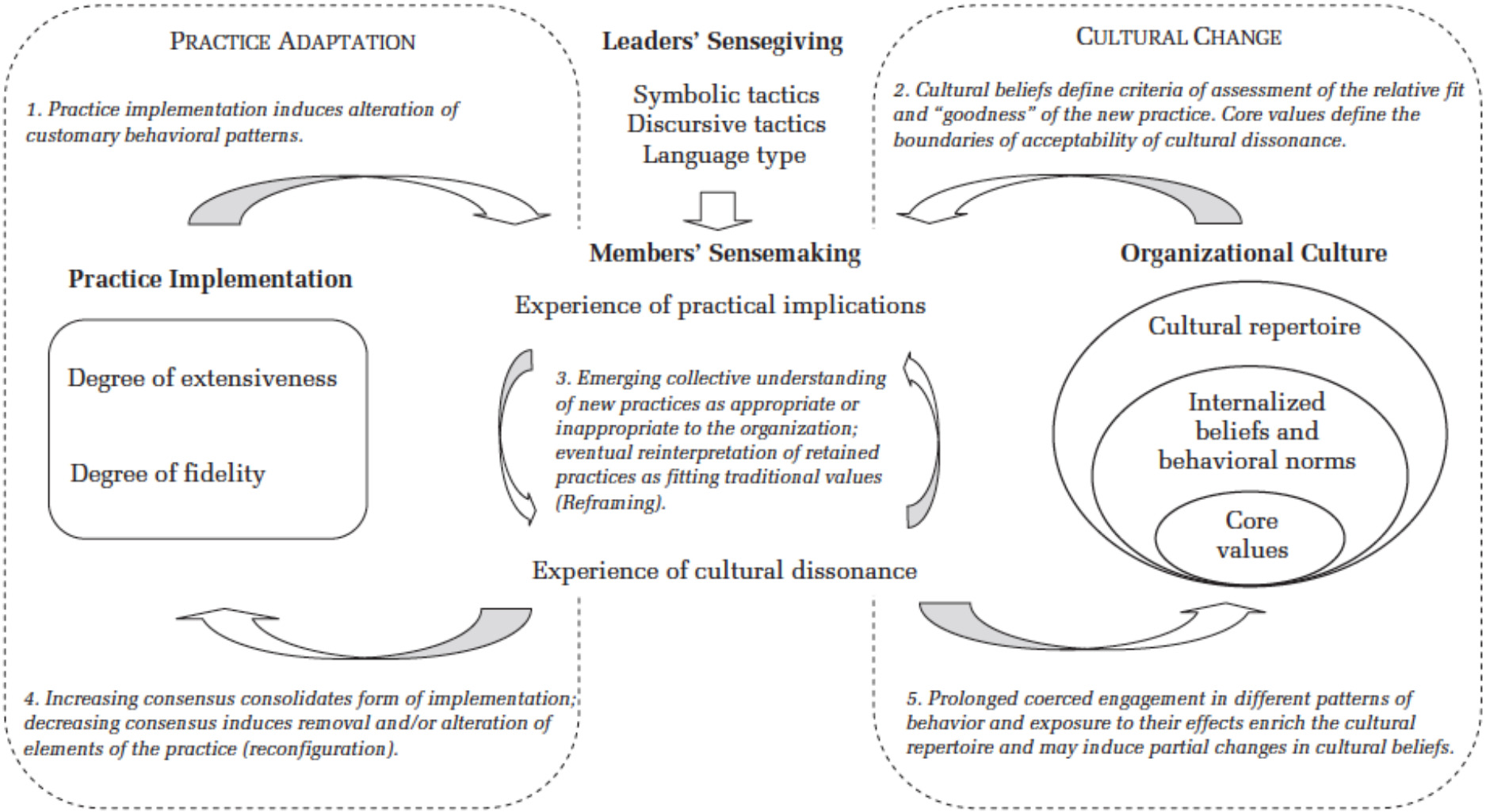
Changes at 3M

What is happening at 3M?

What is Six Sigma?

How were the tenets of Six Sigma antithetical to or incompatible with 3M culture?

FIGURE 2
A Process Model of Practice Implementation in Cases of Low Cultural Fit



What happened?

How did 3M change the Six Sigma implementation?

How did Six Sigma change 3M?

What might companies be able to learn from this historical case study when adopting data analytics and AI?

See you on Wednesday!