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Managing long-lasting cultural changes

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Executive summary

Research on cultural change has produced mixed results. Some studies celebrate the capacity of charismatic and visionary leaders to carry out rapid transformations in organizational norms and values. Other studies warn us that these changes may be short-lived: organizations tend to resist cultural change, and when coercive pressure from the top is relaxed, they often revert to traditional patterns of behavior.

Our longitudinal study of the implementation of Six Sigma at 3M suggests that organizational cultures may be simultaneously more and less receptive to long-lasting changes that currently believed. When asked to behave in ways that conflict with the usual "way we do things around here" employees may accept to revise their beliefs and habits if they experience changes as offering superior solutions to their problems. They will do so, however, only to the extent that changes are not perceived as threatening deeply-held, emotionally-laden "core" values, that they perceive as foundational, enduring and distinctive for the organization.

Our observations suggest a multi-layered conceptualization of organizational culture according to their relative malleability of its elements. They remind organizational leaders about the importance of assessing whether the changes that they envision will simply enrich the cultural repertoire of the organization or will require modifications in the widely-accepted, but not deeply-held beliefs and norms of behavior, or may challenge the core values that define the very identity of the organization and its members.

Organizational and strategic changes often require employees to modify their behavior in ways that conflict with traditional "ways of doing things around here" – or, in other words, with the culture of the organization. Edgar Schein describes organizational culture as a set of assumptions and beliefs that shape how people habitually relate to one another, their tasks, and the broader environment. These assumptions are mostly tacit and taken for granted. They usually manifest more consciously-held values, defining desirable or undesirable behavior deserving punishment or reward. These values are often formalized in organizational statements, but, together with the underlying assumptions, also manifest a web of visible and tangible expressions, through corporate jargon, symbols, stories, practices, myths, physical settings and others, collectively referred to as organizational artifacts.

Schein's framework is useful to describe an organizational culture at a given point of time. It draws attention to how the various elements of a culture are tied together in a relatively coherent whole and, also because of this coherence, how difficult to change culture is. People, according to this view, are reluctant to modify traditional habits. Altering more superficial practices, structures and systems may conflict with the deeper assumptions they embody and symbolize. Changing the way people relate to one another, or perform their tasks may generate uncomfortable dissonance with what they have always believed to be the appropriate way, reflecting these fundamental assumptions. Because of their taken-for-granted nature, however, these assumptions are not usually open to debate.

How is it possible, then, for senior managers to promote and manage cultural changes? While there is general agreement that cultures tend to change naturally and incrementally

because of demographic changes and changes in the broader cultural environment, scholars are divided about whether profound cultural changes can be introduced quickly and purposefully. Some authors celebrate the capacity of charismatic and visionary leaders to carry out rapid transformations in organizational norms and values, and to induce radical changes in people's behavior. Successful cultural change depends on the capacity of organizational leaders to create a sense of urgency, articulate an alternative vision for the future, and encourage changes through a combination of substantial and symbolic moves that signal the rest of the organization that it has to revise its values and priorities.

Other authors – taking a longer-term perspectives – warn us that the short-term changes that we observe in these cases may be only ceremonial or ephemeral. Organizational culture – Daniel Denison reminds us – is "what people do when none is looking": people may temporarily comply with the new norms, but when coercion is relaxed, they often revert to traditional patterns of behavior reflecting deeply-ingrained assumptions. At times, extraordinary organizational circumstances, such as spin-offs and demergers, or severe organizational crises, may induce people to be more receptive to cultural changes, as traditional assumptions no longer apply or seem to ensure the survival of the organization. Under normal circumstances, however, changing organizational cultures is one of the most serious challenges for organizational leaders.

Our longitudinal study of the implementation of Six Sigma at 3M, under the leadership of CEO James McNerney, first, and George Buckley, later, indicates that, to some extent, both these perspectives are right and both are wrong. Our findings suggest that inducing long-lasting

changes in people's assumptions about the appropriate ways of addressing their tasks and relating to each other is possible – and perhaps less difficult than currently assumed. Coercive implementation of new practices, structures, and systems may force people to experiment with new ways of doing things that may, over time, become assimilated as "the appropriate way" to the extent that they are perceived as providing better solutions to day-to-day problems or improving organizational performance. However, these changes will only last to extent that they are perceived as compatible with a restricted set of "core" values that define the identity of the organization in the eyes of its members (and, to some extent, its stakeholders too). Organizational cultures, in other words, are amenable to change, but it is these core values – the organizational identity – that set the acceptable boundaries of the change.

IMPLEMENTING SIX SIGMA AT 3M

Founded in 1902, 3M is one of the few U.S.-based multinational corporations that is more than a hundred years old. After a somewhat difficult start, it established itself in the manufacturing of a large number of products related to adhesives and coatings. Since then, it has experienced continuous growth, expanding its offering into several markets. 3M now operates in a wide range of industries and markets, where it pursues a differentiation strategy, fueled by an impressive effort and success in technological innovation. For many decades 3M has consistently spent twice as much as the average US company in R&D, and significantly more than its competitors.

3M is also widely known for its distinctive organizational culture, which encourages self-initiative, autonomy, and collaboration among colleagues. William McKnight, president in 1929,

and then chairman of the board between 1949 and 1966, is largely credited for instilling these values in the company. His managerial principles – internally known as the "McKnight's Principles" – were first laid out in 1948, and were still present in the corporate website at the time of our study:

> "As our business grows, it becomes increasingly necessary to delegate responsibility and to encourage men and women to exercise their initiative. This requires considerable tolerance. Those men and women, to whom we delegate authority and responsibility, if they are good people, are going to want to do their jobs in their own way.
>
> Mistakes will be made. But if a person is essentially right, the mistakes he or she makes are not as serious in the long run as the mistakes management will make if it undertakes to tell those in authority exactly how they must do their jobs.
>
> Management that is destructively critical when mistakes are made kills initiative. And it's essential that we have many people with initiative if we are to continue to grow."

These principles, the enduring legacy of a legendary leader of the past, articulate some of the assumptions underlying what people at 3M considered their most important and distinctive values: self-initiative, creativity, collaboration, and tolerance for mistakes.

The values of self-initiative and tolerance for mistakes were clearly expressed in the widely repeated motto "Better ask for forgiveness than for permission." Self initiative was also encouraged by the ample autonomy the research labs enjoyed. Micro-management was shunned, and the organization was designed to "get out of people's way." "You do not build fences around people" – McKnight used to say – "fences make sheep". Self initiative was also encouraged by the celebrated 20% rule, according to which scientists and engineers were allowed to spend 20% of their time in skunkwork projects that would occasionally lead to commercial blockbusters, such as the popular Post-it. A corporate biography issued soon after

McNerney's arrival claimed how "attracting and retaining imaginative and productive people" and "designing an organization that does not get in people's way" were "key ingredients that foster a culture of innovation at 3M."

Self-initiative and tolerance for mistakes were considered essential to stimulate creativity and innovation. 3M's Time Tested Truth included "Give good people opportunities, support them and watch them thrive", and "Innovation comes from individuals, not just following orders". Employees were encouraged to follow their judgment and gut feelings, and occasional failures were tolerated as "part of the game" – the inevitable side effect of constantly trying to push the technological frontier. People should not fear for their jobs because the ideas they had pursued failed, or they would not have the confidence to take the bold risks associated with radical innovation.

Collaboration across labs, divisions, and country organizations was also considered essential for the exchange of knowledge, ideas and experiences, and for the transfer and replication of innovation across units. A strong collegial spirit and an egalitarian culture fostered collaboration, and building positive interpersonal relationships was important for advancing in the organization.

These values supported a business model based on the constant exploration of new technological opportunities that opened up new markets and market segments where 3M could reap high margins to cover the high investments in research and development. Based on this model, 3M had thrived for more than 90 years. In the early 1990s, however, the traditional double-digit growth of the company had begun to slow down, and in 1995, for the first time in

its history, 3M failed to meet its goals, reporting an 8% rather than the predicted 10% growth in earnings per share. In 2000, the increasing dissatisfaction of business analysts and investors with the low profitability of 3M, if compared with other high-tech companies, led to a lagging stock price in the face of a rising market, and induced the board of directors, for the first time in the company's history, to appoint an outsider as CEO: former General Electric VP James McNerney.

After a few weeks, the new CEO announced a vast program of organizational changes. Central to these changes was the companywide implementation of Six Sigma™, a set of quality-control techniques morphed into managerial practices to stimulate efficiency and productivity, which he had mastered at GE under the leadership of Jack Welch. Central to Six Sigma is the structuring of any management problem in quantitative terms by identifying relevant variables (the "Ys" and "Xs"). It mandates the use of specific graphs, tables and documents to identify optimal solutions, by minimizing risk, uncertainty, and waste of resources. The implementation of these solutions is closely monitored, and successful solutions are replicated throughout the organization.

The new practice embodied assumptions and values that seemed to collide with 3M's traditional culture, and raised initial concerns about their compatibility. The new CEO dismissed these fears, stating that he valued 3M's tradition of innovation immensely, and that he would consider himself as having failed if his ideas affected 3M's innovative traits. Yet, it was clear to everyone that Six Sigma was a way for the new CEO to induce long-lasting cultural changes in

the organization – an intent that McNerney had signaled unequivocally soon after his arrival, by stating "I am here to change your DNA!"

McNerney's swift, forceful action and his personal charisma helped him rally the organization and push it to take on the challenge. Early results – lower inventory levels, higher cash flows, profitability, and stock price – energized the organization and reinforced confidence in the new practice. In the following years, however, the initial enthusiasm gradually gave way to increasing disillusionment and, when, in 2005 McNerney suddenly left the organization to become CEO of Boeing, the elaborate Six Sigma structures and practices were largely dismantled. When asked whether McNerney and Six Sigma had eventually changed the culture of the organization in the long run, the answer of our informants was simultaneously "yes" and "no".

Using Six Sigma to promote cultural changes

A few weeks after his appointment, McNerney summoned all 3M's executives from around the world for a three-day seminar on Six Sigma. He announced that all regular employees, with more than two years of working experience would receive a basic training on the Six Sigma methodology ("green belt" training). Training was delivered locally, but it was mandatory for local trainers to use centrally developed corporate material. After this initial training, green belts were expected to complete 0.5 Six Sigma projects every year. This goal became part of their annual appraisal.

A number of selected employees would become "black belts": internal experts, whose task was to advise others on Six Sigma practices and monitor the use of these practices throughout

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the organization. Black belts were chosen from young high-potentials across the company. They were enrolled in a two-year training program carried out at the headquarters, and became responsible for building the ranks of the "Six Sigma structure", a newly created staff division, whose leader responded directly to the CEO. At the end of the program, black belts would be appointed to more senior positions, at times involving a jump of two levels on 3M's promotion scale.

Standard Six Sigma DMAIC and DFSS methodology was implemented globally across all units and divisions, from manufacturing to sales, marketing, and the research labs. DMAIC (an acronym for Define, Measure, Analyze, Improve, and Control) is a method aimed at improving existing business processes. DFSS (an acronym for Design For Six Sigma) aims at reducing uncertainty and inefficiency in new product or process designs. Training started in the summer of 2001, and by the end of 2004, all salaried employees (around 80,000 people) had been trained in Six Sigma. By the first quarter of 2004, more than 11,000 projects had been completed throughout the organization, and another 12,000 were under way.

The faithful implementation of Six Sigma techniques required 3Mers to address their tasks and relate to one another in ways that differ considerably from what they were use to. The new practices reflected assumptions – about the goals of organizations, the nature of people and social relationships, the nature of uncertainty and the basis of good decisions – that clashed with the fundamental assumptions that the old 3M culture rested upon (see Table 1). "We are a technological company" – one of our informants said – "We were used to hear our leaders talk

about technologies, innovation, growth, research and development, not about finance and cash flow."

Six Sigma had its roots in quality improvement and waste reduction. It aimed at increasing efficiency and productivity through an optimal use of resources. It invited people to make decisions based on accurate quantitative assessment – "Say yes with data" was the new motto – and to focus efforts on incremental, market-driven innovation. While risk had always been considered inherent in research and development, Six Sigma tried to minimize uncertainty and errors. People were expected to set themselves challenging goals (a "Goal Tree"), and were closely monitored on their attainment. Success and failure had immediate consequences for careers and rewards. "Before we had a culture of 'Let's try, and if does not work, we'll find a justification for it'." – said another informant – "Now this is not acceptable. Before acting, you have to give yourself a goal, and a supra-goal called 'entitlement', and you have to make sure to achieve at least your goal".

Some people in the organizations were alarmed that the new "data culture" – with its emphasis on risk-reduction, efficiency, and accountability – would undermine 3M's traditional innovative ability. They feared that Six Sigma would reduce the possibility for scientists to stumble on new innovative solutions. Others, however, welcomed the increased rigor that the Six Sigma had introduced in decision making and evaluation, the stricter monitoring and control over the use of resources associated with it, and the increased rewards for high performers. The forceful implementation of the new practices, however, left no choice but to adopt them – and most people around the organization did it, and did it earnestly.

Despite initial concerns, early financial results seemed to indicate that changes had produced substantial benefits. In the first three years, Six Sigma projects were claimed to have produced savings for about $400 million/year. These figures even exceed the CEO's expectations and initial forecasts. In the meantime, 3M's share price on the NYSE almost doubled between 2001 and 2004.

Six Sigma as a new religion

The apparent success of the "new way of doing things" reinforced the influence of the Black belt division, and encouraged the enforcement of tighter controls on the companywide initiation and execution of Six Sigma projects. The marginal improvements of additional projects, however, started to decline. People complained about the increasing amount of time and resources dedicated to Six Sigma projects that subtracted to business development. They began to lament that Six Sigma had become a new "fashion" or a "religion" to be followed, regardless of its practical benefits. Six Sigma metrics seemed to have become more important than business results. Conformity to Six Sigma rules seemed to be slowly displacing the overall efficiency goals that the new practice was initially intended to enhance. More importantly, as the new practice fully displayed its effects, it appeared that increased efficiency had been achieved at the expense of growth and innovation, as reflected in the declining percentage of revenues from new products.

While at an early stage, people had willingly engaged in the "new ways of doing things" associated with Six Sigma, despite they clashed with their traditional assumptions, they now began to express their discomfort that these changes were threatening what they perceived as

core, foundational, and distinctive values that the company had build its fortunes on in the past. Excessive planning, they lamented, was stifling creativity and innovation. With Six Sigma, they argued, the Post-it, serendipitously developed from failed glue, would have never seen the light. Post-it was considered a symbol of how the company's success was built on autonomy, creativity, perseverance, and tolerance for mistakes. "This is not who we are" – people reasoned – "If Six Sigma is bad for Post-it, it is bad for 3M."

Emphasis on risk-reduction inherent in Six Sigma contrasted with traditional tolerance for mistakes and encouragement for self-initiative, reflected in the widely accepted norm that it was "Better to ask for forgiveness than for permission." "We are a company that *has been built on* mistakes." – one informant remarked – "We are the company that created Art Fry [the inventor of Post-it]. We used to glorify mistakes that years later bring amazing products and results without a true plan." Strict control and accountability discouraged self-initiative. As an informant observed, under Six Sigma "people did not want to take risks and ask for forgiveness later, because they felt there was not a very forgiving atmosphere."

Despite the undeniable improvements that Six Sigma brought to the financial performance of the company in the early years, employees realized that strict enforcement of Six Sigma had begun to threaten foundational values of creativity, self-initiative and collaboration, resistance intensified. The implementation of Six Sigma gradually became ceremonial. Six Sigma tools were used because they were required, but people found ways to bypass the rules in order to operate according to what they perceived as sensible business logic.

McNerney himself seemed to realize that in some areas of the organization the costs of a strict implementation of Six Sigma were higher than the benefits, and he warned managers not to lose sight of the ultimate purpose of the organization. Skepticism, however, increased, and when in June 2005 the CEO suddenly left the company for Boeing, his successors began to relax the pressure – project managers were given freedom to tailor data analysis and supporting documents to the specificities of the case. Senior managers eventually dismantled the Six Sigma division and leadership development structure. The quality function was assigned the task to hybridize concepts from Six Sigma and lean production for restricted application to the company's manufacturing operations.

Six Sigma after McNerney

If we had concluded our study in 2004, we would have prematurely celebrated the successful transformation of the company – as other did in similar cases – and attributed it to the charismatic leadership of Jim McNerney and his skillful management of the change process. Two years later, we would have drawn attention to the inertial nature of organizational cultures, and underlined the difficulties to implement long-lasting changes. By prolonging our study until 2008, however, we could see how some of the changes had become embedded in the fabric of the organization despite the apparent discrepancy between the values Six Sigma embodied and the traditional culture of 3M. This observation helped us produce a more nuanced representation of the long-term effects of the forceful implementation of new set of practices at 3M.

Despite the formal rejection of Six Sigma methodology and its refocused application to manufacturing, informants agreed that 3M had "changed more in the last few years than in its entire history," and that the experience had impacted the culture of the organization in a significant way. Informants who had initially rejected the introduction of standard templates and tools to address business problems, because it conflicted with the traditional autonomy left to organizational units and divisions, now praised the common language associated with them. It simplified communication and facilitated exchanges across units. By doing so, they reasoned, the common language introduced by Six Sigma really reinforced collaboration and knowledge sharing, especially between the R&D community and the marketing units. Standardized templates and a common business language – they claimed – also facilitated the replication of initiatives from one part of the company to others. Their mandatory use, however, was rejected, because it conflicted with the freedom to use initiative and pursue new ideas that had been celebrated throughout 3M's history.

Interestingly, several people that had been initially very critical about the new methodology, found themselves – somewhat to their surprise – spontaneously using tools and ideas from Six Sigma to address their everyday problems even if they were not required anymore to do so. "Six Sigma changed the way people think", informants reported, as they explained how, while the organization was no longer "obsessed with data", their way to approach business problems had partly changed. Intuition and gut feelings were still trusted, but people now paid more attention to numbers than they used to. Decision were no longer aimed at minimizing uncertainty and variability, but people had become used to calculate risks associated with their decisions. Failure returned to be considered an acceptable outcome of innovation, but people now appreciated

the importance of clarifying expected results, and they took planning and control more seriously. "Before [Six Sigma], once we had acted, we would not check carefully if the results matched what we expected. Now, we may not follow Six Sigma requirements, but at least we monitor actions in a more constant way." Also thanks to the use of quantitative measurement, performance evaluation was now objective and more straightforward.

Despite these undeniable changes, however, people agreed that Six Sigma had not shaken the fundamental beliefs in creativity, collaboration, self-initiative, autonomy, and tolerance for mistakes that the company was built on. As an informant insightfully put it, McNerney and Six Sigma had "changed our culture, but not the values of the company."

ORGANIZATIONAL IDENTITY AND CULTURAL CHANGE

We do not claim that the case of the – successful? Failed? – organizational change at 3M under James McNerney should be considered a blueprint for management. We believe, however, that this case is instructive because it sharpens our understanding of whether and how organizational leaders can introduce long-lasting changes in the organizational culture.

A practice-based approach to cultural change

The logic behind the changes introduced by the new CEO made much sense. By using his personal charisma and coercive power, he had the whole organization exposed to a completely new way to approach business problems. This "new way of doing things" was embodied in a new set of practices that all employees were required to familiarize themselves with and to apply in their day-to-day activities. Cultural change would be facilitated by a company-wide

leadership development program that would ensure the swift promotion of talented managers who had internalized the new values of efficiency, data-driven decisions, accountability, and competition that the new CEO wanted to diffuse.

The approach McNerney followed can be described as a practice-based approach to cultural change. Often, senior managers attempt to introduce long-lasting changes through a concerted effort to persuade the rest of organization to modify their behavior. They articulate a new vision and/or set of values, and entrust the diffusion of these values to a combination of internal communication, collective workshops, coaching, and training. The problem with this approach is that people are then expected to change their behavior and implement new values because "it is right to do so." This approach, however, is often destined to clash with the inertial forces that push us to naturally persist in established patterns of behavior, in absence of strong motivations to change.

The approach McNerney followed, instead, encouraged people to change their beliefs, by forcing them to engage for a prolonged period of time in work practices that reflected new assumptions and embodied new values. Extensive coaching and training would help people make sense and master new practices. The redesign of control and incentive systems would minimize the risk of symbolic, ceremonial compliance. Over time, experiencing the positive effects of the new approach would induce employees to overcome their initial prejudices and to revise their traditional beliefs and assumptions about the right way to make business decisions, allocate resources, and manage people. Repeated engagement in new work practices, then,

would induce people to eventually accept these practices – and internalize the associated

beliefs and assumptions – "because they work" rather than "because we have to".

Organizational identity and the boundaries of cultural change

In the case of 3M, this approach did not entirely work as planned. Despite the deep

personal involvement of the CEO in the promotion and diffusion of changes and the positive

results of the early years, the organization eventually rejected the new practices and the values

associated with them. Yet, three years of coercive implementation of Six Sigma left profound

traces in the organizational culture. McNerney's plan might have not turned 3M into another

GE, but did not fail entirely either.

These observations suggest that different elements of an organizational culture may be

more or less malleable to change, in ways that differ from what traditionally assumed. Schein's

widely accepted theory of organizational culture distinguishes between consciously-held and

espoused values defining appropriate patterns of behavior, and less conscious, tacit

assumptions about how to address fundamental problems of how to survive and grow as an

organization, and how to regulate social interaction. Fundamental assumptions are generally

believed to be intrinsically less debatable and more resistant to change than espoused values.

At 3M, however, people seemed willing to revise some of their assumptions, about, for

instance, what makes good business decisions, how to approach risk taking, or how to evaluate

performance. Perhaps, they did not go as far as the new CEO expected them to, but they

undeniably modified some of their beliefs, and the associated practices. Yet, they drew a line

when changes seemed to threaten some distinctive values – not only espoused, but also highly celebrated – that they believe represented the "soul", the "spirit", the enduring "essence" of the company.

These observations draw attention to what has been called organizational identity – a set of deeply-held and emotionally-laden beliefs about core, enduring, and distinctive attributes of the organization. It suggests how the identity of the organization may set strong boundaries to the extent to which even powerful and charismatic leaders, such as James McNerney in the 3M case, can really change the culture of an organization.

A multi-layered view of organizational culture

Our study suggests a multi-layered re-conceptualization of organizational culture, highlighting the degree to which beliefs, values and assumptions are internalized by people and shape their everyday practices (see Figure 1). This conceptualization is supported by recent developments in cultural sociology and cognitive anthropology. A rising perspective in cultural sociology portrays culture as a "toolkit" – a repertoire of concepts, ideas, beliefs, and symbols that people flexibly use to interpret their daily experience and address their problems. Cognitive anthropologists argue that, under normal circumstances, how people to use their toolkit is shaped by cognitive structures that reflect conventional beliefs and expectations. Not all these beliefs, however, will be equally strongly-held and deeply-internalized.

Insert figure 1 about here

In part, our behavior follows taken-for-granted, habitual patterns that we have been socialized into and we have come to accept as the customary way to behave in a given situation. Some beliefs, norms, and expectations, however, are imbued with particular meaning. Their violation or alteration is likely to trigger intense and emotional responses because they are more closely related to our understanding of who we are as individuals or members of a broader group – an organization, a profession, or a nation. Some elements of culture, in other words, are more strongly held and emotionally laden because they are directly related to our individual or collective identity.

When applied to organizations, this suggests that some beliefs and assumptions associated with "core" organizational values matter more than others. They have survived the test of time, and have been around for decades. They are central to how people inside and outside understand and describe the organization (and themselves). They are celebrated as unique and distinguishing the organization from its competitors. These values, then, will be more resistant to change than less deeply internalized habitual patterns of thought and action.

These observations are consistent with our previous research on organizational identity, culture, and change. At hearing-aid producer Oticon, soon after the departure of the visionary CEO Lars Kolind, the much celebrated "spaghetti organization" – a fluid, project-based organization, based on the dismantling of the corporate hierarchy – eventually returned to a more traditional structure, with stable groups and hierarchical levels. At Bang & Olufsen, a producer of high-end televisions and audio systems, cultural changes aimed at promoting

internal integration and market orientation were carried out within the boundaries of a strong

organizational identity emphasizing design leadership, technological excellence, creativity and

inventiveness. In this respect, Alberto Alessi, head of the producer of designers' kitchenware

that carries its family name, facilitated the cultural changes that transformed the company from

a traditional metalworking firm to an internationally renowned design powerhouse by

articulating a new understanding of the organization – as an artistic mediator, a laboratory in

applied arts, and a "dream factory" – that helped people make sense of the profound changes

he was introducing in the company.
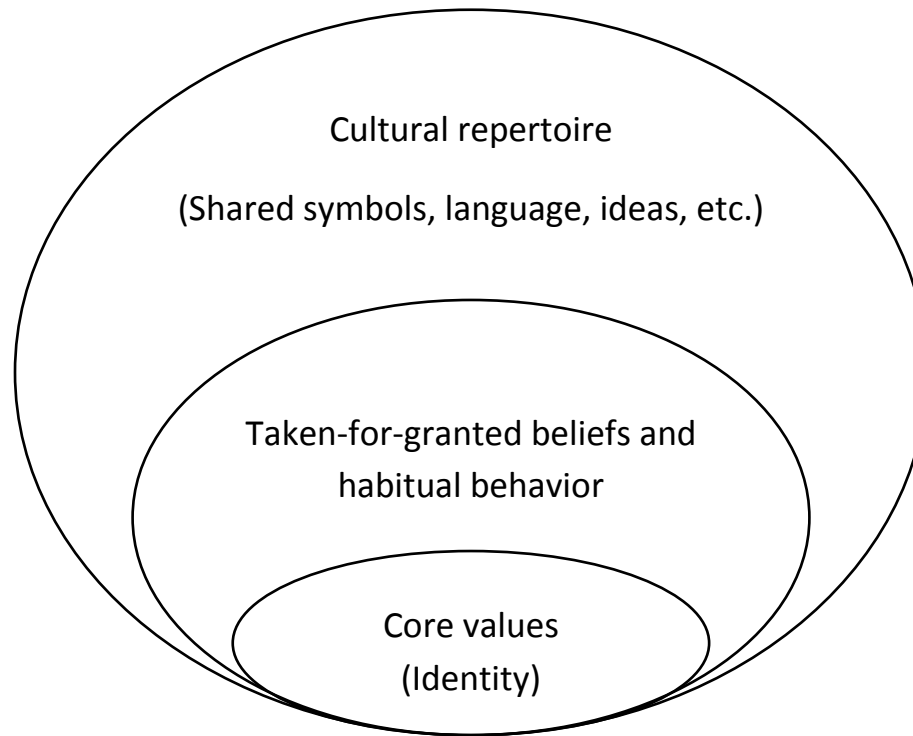
SUMMARY

Organizational cultures – our study indicates – may be more malleable in their outer and

middle layers, yet more resistant and enduring in their core, than traditional theories of

organizational change suggest. Our re-conceptualization highlights the centrality of

organizational identity in shaping how members make sense of what they do and why they do

it. From a managerial perspective, it suggests that introducing long-lasting changes in

organizational culture is not impossible. The practice-based approach McNerney followed

illustrates a possible way to accomplish this change. However, more profound changes that

affect deeply-held values require organizational leaders to address directly people's beliefs and

understandings of the identity of their organization. The vision they articulate should help

people make sense of how the proposed changes will reinforce these understandings, or

suggest alternative, attractive, energizing conceptualizations that would justify cultural changes.

McNerney's vision for 3M – a leaner, more efficient organization to liberate resources for

growth through acquisitions – seems to have failed on both accounts.

Table 1. A clash of assumptions: 3M vs. Six Sigma

Assumptions	3M traditional culture	Six Sigma
About organizational goals	Long-term growth and innovation: Radical technological innovation ensures high premium in new markets where the organization leverages technological leadership.	Efficiency and productivity: Focused, market-driven innovation ensures an optimal use of the resources of the organization.
Organizational strategy	Investments in basic research are expected to generate radical technological innovations, allowing the organization to exploit profitable niches.	Investments should be focused and driven by the market. Funding should prioritize projects that already have clear market potential.
About human nature	People will perform if given autonomy and trust.	People will perform if held strictly accountable.
About risk and uncertainty	Risks should be accepted as inherent in delegation and freedom of initiative. People are encouraged to experiment and to take risk in order to stimulate radical innovation.	Uncertainty and variance in the output or processes or projects should be minimized for the sake of higher productivity.
About decision making	Good decisions are based on experience and judgment. People are allowed to make decisions based on their judgment and "gut feelings."	Good decisions are based on careful and systematic data collection and analysis ("Say yes with data"). Approval for new projects requires extensive data gathering and careful analysis.
About human relations	An organization thrives if internal collaboration facilitates the exchange of knowledge and ideas. Emphasizing differences in performance de-motivates and undermined collaboration.	An organization thrives if competition stimulates individual efforts and performance. Outstanding talents and accomplishments should be singled out and rewarded.

Figure 1. Organizational culture: A reconceptualization based on degree of internalization and malleability to change

Cultural repertoire

(Shared symbols, language, ideas, etc.)

Taken-for-granted beliefs and
habitual behavior

Core values
(Identity)

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