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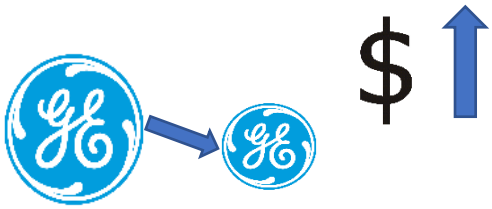
Flannery's new regime strongly supports R&D and innovation, but cash is king?

GE's reputation for innovation management will remain as is except within the Power Division.



December 16, 2017

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Executive summary

GE remains, under Flannery, deeply committed to investment in research and development and the priority for keeping GE innovative, as were the expressed priorities under Immelt. Aggressive action is, however, required to restore financial health.

During a recent investor relations presentation[1], and during the Q&A period, Flannery was very positive on the need to continue global research and to maintain support for centralized R&D. Two research centres were especially noted; New Jersey and India R&D spending, especially centralized R&D might have been a target for some CEOs, given GE financial predicament, but not so for Flannery.

The focus of potential divestitures such as Lighting and Industrial Solutions, will not have a material affect on GE's culture for innovation. Power, representing historically a major portion of revenues and profit for GE, could be impacted as line-by-line reviews of its operations take place and bring into focus areas for cost reduction and asset optimization.

The major segments of GE's business, Aviation and Health Care are unlikely to be impacted by ongoing restructuring. Flannery leaves Health Care in good shape and Aviation has its own deeply-entrenched culture for innovation as is necessitated to be a player in these industries.

GE sees the postponement of a global vision and a retrenchment focussed on cash. Not bad ideas for this American icon.

[1] GE Investor update, November 13, 2017, John Flannery et al.

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Background

CIO's interest in GE

CIO published its latest profile of GE[2] as of February 25, 2017, not because of any impending change at the top level, bur rather due to the extensive restructuring which had taken place since an earlier report. CIO's executive summary as of February noted;

- GE needs to reinvigorate its tradition of innovation.
- Recent restructurings place GE in a very desirable position to finally, after a decade of poor financial performance, realize significant value.
- Immelt's initiative to 'simplify' the way GE does business must include dramatic decentralization with accountability. Why? For GE to become more entrepreneurial and speed up decision making.
- At the same time, GE, must tighten its financial management practices and perhaps learn from the practices of Deere & Co. and 3M, two companies which CIO has researched, and which appear to be better at managing highly-diversified businesses than does GE.

Our first report of August 2009 noted the beginnings of major restructurings, particularly the divestment of business segments which were inconsistent with the culture of GE; namely the financial services and entertainment industries.

The current portfolio is much more in line with GE's culture than it was pre Immelt but still requires careful strategizing. See Appendix A for a brief profile of GE.

Why GE is important?

An American icon in trouble

Why is it important to understand the why and how of innovation in a company the size and scope of GE?

- GE has a special place in American business folklore.
- GE has, historically, been one of the best training grounds for America's managers. McNerney, but one of many examples, moved on to 3M and then to Boeing, having learned the ropes at GE while under Welch
- Management tools such as strategic planning was first adopted by GE.
- In Peter M. Senge's book, The Fifth Discipline, he points out that[3] one of the distinguishing differences between the public and the private sector is that the latter, 'is the locus of innovation in an open society'. GE remains an economic force in the U.S. economy.
- GE, being of the size that it is, represents a major source of new ideas and products globally and has done so for well over a century.

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[2] CIO innovation management report, February 25, 2017 entitled; GE's recent 'Cialis' is the discovery of AI, digital data management and coding applied to newly-focused industrial segments. 'Pivoting' and 'simplicity' are in and so is clever coding. Visit the web site.
[3] The Fifth Discipline, p 15.

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It is important to understand how this powerful and influential company has built and sustained entrepreneurship and innovation[4] over its history.

GE (the division in Bromont, Quebec) was part of the original research conducted by Arthur D Little leading to the establishment of this web site. The research sought to identify best management practices and policies which encouraged innovation. GE would not likely be on the same list today.

GE during the 1960s and through to the 80s pioneered developments in strategic planning. Initially carried out by setting in place staff groups to help line managers cope with the process of strategic planning, the effort soon morphed into training all managers into thinking strategically. Inculcating strategic thinking into every manager was the objective and worked well over decades.

GE's deep-rooted culture

Hire from within to sustain the culture

'Mention GE's culture to long-time company employees and they'll nod in agreement, as if everyone knows what the other is talking about'. They 'know the dynamics of the company's culture because they have lived it' and 'they are taught it through reinforced training throughout their careers' so notes David Magee[5].

'When discussing the culture of a company with long-held internal convictions and traditions like GE, the concept can come off as esoteric. What exactly is this cryptic notion that a company of more than 300,000 employees actually possesses such invisible and tangible qualities as being a learning culture or an innovation engine?' Osmosis is at work! The legacy of founders lives on.

Apparently, the company believes so strongly in their culture that the 'promote-from-within' mantra is solidly in place. Even with the current financial crunch, the choice has been to hire from the inside is a means of ensuring that the culture is carried forward from one generation of leadership to the next; in the belief that one who has 'lived it' is better able to sustain 'it'. 'Shared knowledge gained along the way made them far more valuable to the company than the hiring of someone without that advantage'[6]. Learning is the force that drives the culture[7].

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[4] As an aside to his book, Senge also notes the difference in the terms used; "invented" - when it works in the laboratory, an "innovation" when it can be practically replicated and if it is sufficiently important it becomes known as "basic innovation" and a new industry is created, or an industry is transformed dramatically. Senge's point is that 'learning organizations' have been invented but 'have yet to be innovated'. So, it is regarding understanding why some companies are innovative, and others are not.
[5] The New GE Way, by David Magee
[6] ibid, p. 167.
[7] ibid, p. 169.

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GE has, along with a number of highly-innovative companies, an aggressive approach to innovation. GE's Open Innovation Manifesto[8] sets out the following characteristics – comments by CIO are in *italics.*

Customer focus, imagination, courage, expertise, inclusiveness, and clear thinking will always guide our collaborative effort.

- We will openly celebrate the efforts of lead solvers who have submitted winning solutions within our public collaborations. *Rewards are available to innovators and made transparent.*

- We'll collaborate with transparency – publishing evaluation criteria, rules, compensation and IP rights at the launch of our engagements. *A clear statement of what is expected – no hidden agenda or hidden biases in the evaluation process. Similar to 3M's long-standing approach!*

- We believe ideas should be compensated - and compensation pools will always reflect level of impact, effort, commercialization risk and IP rights. *Rewards are key and substantial.*

- We'll provide access to pools of IP to enable the Global Brain to create new and beneficial outcomes.

- We'll never stop experimenting, collaborating and learning – we'll get smarter as we go, and the Global Brain will evolve and grow with us. *Innovation is a constant and part of the GE culture.*

NineSigma[9] is also part of GE's approach to open innovation and an example of open innovation – similar to P&G's Connect and Develop – and is aimed, in this case, at gathering ideas for water and process technologies and industrial solutions.

Immelt learned the culture from osmosis[10] and could articulate his version in 'three things';

- Integrity,
- Performance,
- Change.

It is, according to Immelt, these three 'things' that are the foundation of the culture of GE and while other things may change, these values do not. 'Constant reinvention' according to Immelt is one of the cultural values of GE[11].

Fast Company included GE in its annual list of the most innovative companies. GE was the top-ranked industrial company on the list, which includes many digital darlings like BuzzFeed

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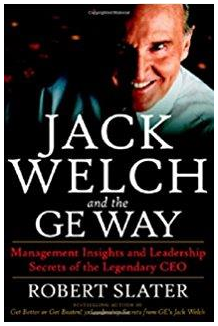
[8] GE Annual Report 2013
[9] NineSigma is an independent organization.
[10] The New GE Way by David Magee - p. 134.
[11] Ibid, P. 147.

(ranked at the very top), Uber and Alphabet. GE would not rank now, but the question is will GE earn back its past reputation?

GE under Welch/Immelt

The same culture but different styles and results



The New GE Way; Immelt's book, focused on what he had done since he took office in 2001. Welch's book was entitled the GE Way. Their management styles were different.

Welch's term

Welch's style of innovation was that of transforming GE through the acquisition (or sale) of divisions. Typically, an acquisition was followed by the application of a very short – at best medium-term – approach to extracting profit from each new acquisition. His style[12] is summarized by Magee;

1. Sell old-line businesses.
2. Acquire number one and two businesses in segment or businesses which strengthen GE's number one or two businesses in the segment.
3. Cut costs and jobs.
4. Eliminate bureaucracy.
5. Cultivate bottom-up employee initiative.
6. Push management hard from the top down to outperform expectations.

Welch's style worked. GE was regarded as a proxy for the U.S. economy; an American icon and the stock price followed suit.

Immelt missed out on points three and four. The focus was on globalization and expansion.

Immelt's term

Immelt's style was, over time, shown to be different than that of Welch. Immelt's approach to fostering innovation was, as the first step, to 'prepare the organization to innovate[13] or in so many words, creating a 'culture' where innovation can take place. Only after this is done can one 'pick the right places to innovate and make them pay.

Having a growth culture, according to Immelt, meant that 'you have to have a way of nurturing people and not make them fight so goddamn hard'[14]. The style, at the time, seemed consistent with the need to encourage organic growth and deemphasize growth by acquisition.

[12] The New GE Way by David Magee p. 13.
[13] Ibid, p. 108.
[14] ibid, p.137.

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Early on, under Jeff Immelt's term as CEO, there was speculation about how he would run GE. Would he use the same approach as Welch? Eventually Immelt made the point 'I am running GE differently'.

Contrast the styles of Welch and Immelt; Welch 'pushed managers, sometimes lashing verbally', Immelt 'typically coaches and coaxes managers'[15].

Immelt's vision changed over the intervening years; 2009 to 2014? There were some signs that GE was adopting a less organic growth and placing emphasis on strategic acquisitions but still within its own sphere of knowledge. The acquisition of Alstom's power and grid business was an example of this change.

While organic growth was Immelt's first choice, strategic acquisitions were also in play. For example, within the Energy – oil and gas division - strategic acquisitions along the value chain were put in place. Acquisitions for drilling and surface activities such as 'Lufkin' and 'vetcogray' and in the downstream technology solutions 'Dresser' and 'Naxys' were completed.

I (Jeff Immelt) am running GE differently

- Shift from portfolio remix "heavy lift" to higher returning industrial portfolio
- Change the blend of talent; experienced operators everywhere - transition in Capital toward risk
- Win in the market; globalization, technology, customers, we are in a business where winning pays off for decades, but make sure investments drive share and margins
- Modernize the capability; every industrial company must be good at IT and analytics
- Modernize the culture; lean, faster, risk based, competitive with compensation to match

GE's global footprint[16], in the Oil and Gas division was impressive at the time of CIOs' earlier report of 2014. Recent openings in Indonesia (300 employees), Brazil (2200 employees), the U.K. and Vietnam built on an existing base of manufacturing and service shops in North America, Europe, Russia, China, and Japan and Korea. The presence in Angola and Nigeria numbered 900 employees. Forty-five thousand of the total employees in GE of 309,000 at the time were accounted for in this division.

GE invested typically five percent of its revenue on R&D but Immelt increased this spending to closer to six percent; 50,000 engineers, 7 Global Research Centers – one Oil and Gas GTC, 1 Advanced Manufacturing Center, 13 Oil and Gas Technology Solutions Centers. GE's reputation for innovation was restored to top 10[17] filers of patents in the U.S., a position which lapsed during Welch's term.

Immelt was an expansionist with sights set on building a global business, tapping research and development expertise in centres outside the U.S. and broadening the line of products and services offered to strategically-identified markets.

[15] The New GE Way by David Magee p. 135.
[16] Circa 2014
[17] GE Annual Report; 2012

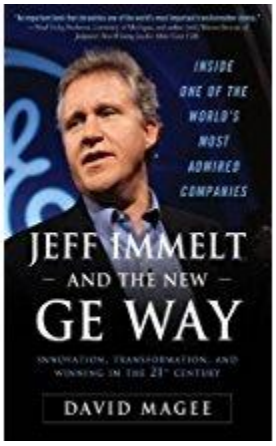
His legacy, and perhaps his most significant move, was a major decision to embrace the digital world by developing Predix using GE's own resources rather than subcontracting, and thus becoming beholden, to probably more experienced suppliers; e.g. IBM, CISCO, etc. To bring this off GE developed its own operating system – Predix - and invested heavily in software engineers and leadership talent.

Immelt was bent on making GE less complex, simpler, from the standpoint of management. Several of Immelt's ideas came are based on research into the practices of venture capital firms.

- Immelt's most recent strategic direction towards 'simplicity' may well be at the root of GE's past poor financial performance as the new initiatives signal problems from the most recent past. Simplicity can mean many things, but one can interpret this to mean, at least in part, to decentralize, to speed up decision making (but keep the financial rigour in place), and to maximize delegation to work groups and others to get things done; all characteristics which are associated with the management practices of highly-innovative, idea-intensive companies.

- Near the conclusion of his term, Immelt also introduced the need to 'pivot' – to act quickly when new information arrives. Try new ides in the market place but be prepared to change once customer reaction makes it clear that something different needs to be done. In CIO's review of Starbucks[18], which does just that, this approach is referred to as 'controlled innovation'. Innovate, listen, change and go back and adjust and take action quickly.

For more information on 'simplicity' and 'pivoting', see Appendix B. The jury is still out on this issue and whether GE, because of its size and the complexity of all of its businesses can be managed effectively.



Immelt's term as CEO has come to an end. While well respected in the industry and popular within GE, and having accomplished a number of significant structural changes within the company, his legacy and perhaps even more importantly that of the Board's, in terms of GE's financial performance, is scarred.

Under Immelt, the 'Cialis' for the company eventually lay in; artificial intelligence, software, coding, big data and the cloud. GE's focus was on the collection and use of 'big' data – really any data which would represent an opportunity for GE to cement relationships with its key customers and at the same time, propel itself into the new era; the 'internet of things'..

The magazine, Fast Company, recognized Chairman and CEO Jeff Immelt for transforming GE into a digital-industrial company connecting machines and businesses to the cloud with Predix, its operating system for the Industrial Internet. Predix had quickly grown into a $5 billion business with $6 billion in additional orders expected in 2016, the editors had noted. "The

[18] See report on Starbucks and note its 'controlled innovation'

program has about 4,000 developers today, and GE is hoping for 20,000 in 2016," the editors wrote. "And products like Brilliant Factory and Digital Power Plant are designed to drive more efficiencies in factories and power plants by using big data to help save money." These developments are now under strategic review by Flannery and his team.

GE's financial performance has been lacklustre at best and part of the answer may lie in conglomerate model, the traditional structure of GE.

Both Mr. Greenwald and Mr. Damodaran[19] state that the Welch/Immelt conglomerate model had been thoroughly repudiated, so much so that there is a widely recognized "conglomerate discount" applied by investors to the stock prices of companies consisting of businesses with no obvious synergies.

Immelt's strategy in returning GE to its roots was clearly directed at focussing on growing industrial sectors such as transportation, aviation and the energy sector but the size and complexity of the organization may well be a contributing factor to poor financial performance and an apparent difficulty in making timely decisions to cut back as markets changed.

GE today

Under Flannery; striking new thinking

Well the rubber has now hit the road. Shareholders have left in droves over the past few weeks and the stock price has cratered especially since the dividend was cut; a necessary development to conserve and be better able allocate cash.

Flannery's style, not that this was other than demanded by poor financial performance, is in sharp contrast to that of Immelt. No more global designs that do not generate cash! Probably an overall reduction of R&D spending and certainly significant, dramatic cost reductions in the Power Division.

What will now happen to innovation under Flannery? GE, reportedly by many and certainly by CIO, has a culture of innovation beginning from the time of Thomas Edison. Will innovation remain a core value?

CIO believes the culture will remain, but management must now take deliberate steps to make sure this happens. Over GE's entire history, there has almost never been this much need to have a clear vision of the role of innovation in the organization and to reinforce that which, to many, was indescribable. Now is the time to describe innovation in GE.

CIO suspects that the many changes in the structure of GE has degraded the importance of innovation. Mergers often lead to discontinuities since the acquired organization does not usually have the same culture as the acquiring organization no matter how hard management works to

[19] Did the Jack Welch model sow seeds of G.E.'s decline? James B. Stewart, June 15, 2017

address the issue. The acquisition of Alstom could well illustrate cultural differences on both sides of the Atlantic. Oil and Gas and BHGE, may also be an example. Culture is deep rooted!

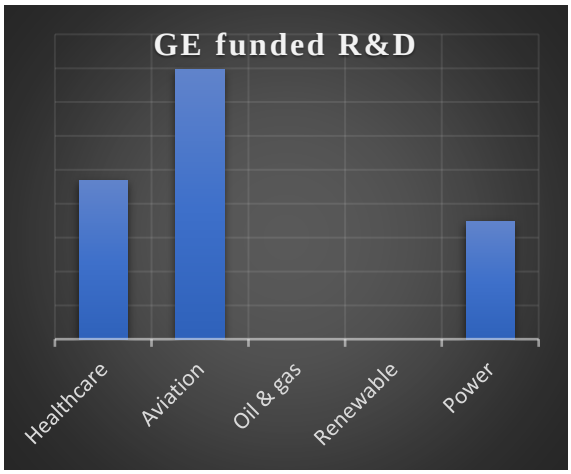
While considerable restructuring has taken place over the last 15 or so years, there remains a need to continue the process. Flannery speaks[20] to the need for GE to be smaller, simpler, best in class and to undertake projects which are 'essential to life'.

Aviation and health care are currently solid and have good prospects for increases in revenue and profit. Pegged for divestiture are Lighting, Transportation and Industrial Solutions within a bundle of divestitures estimated to total $20 billion.

GE's efforts are to 'stabilize' Power and the most recent announced dramatic job cuts (20% of global staff) in Power is a first step. Oil and Gas, with 62.5% ownership of BHGE, represents another opportunity for GE to monetize, under some yet to be determined model, an operating investment. All but Power and Transport anticipate upward movement for 2018[21].

Thus, leaving aside the BHGE segment, GE's culture for and investment in innovation remains as strong as ever in two of the three biggest business units. Divestitures are unlikely to impact GE's commitment to innovation.

The latest annual report (2016) states that GE invests upwards of $5 billion is research and development; $1.6 in Aviation, $.94 billion in Health Care and $0.7 billion in Power plus $2.24 billion in what is referred to as 'Corporate'. By far the largest category of spending on R&D is 'corporate' at $2.24 billion. CIO assumes that much of this figure is attributed to GE's investment in the development of Predix as well as other projects within the corporate labs in New Jersey and in India.



While CIO is sure that Oil & Gas, Renewables, and Transportation spend something on R&D, this is not noted[22] as such so one presumes the funds are much more limited and are co-funded.

Spending on R&D is one indication of investing in future growth and without this spending there are doubts raised about management's commitment to the future. Aviation and Healthcare emerge, by this criterion, as more at the core of GE than do other divisions

Power seems vulnerable to over heated cost reduction impacting investment in research and development.

[20] Investor relations conference, November 13, 2017
[21] The Economist, November 18, 2017
[22] GE latest annual report 2016

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The Board

Board arrangements need to be noted.

Under Immelt the Board committee composition included the normal audit committee, management development and compensation committee, but also included a 'Risk Committee' and a 'Science and Technology Committee'. It is rare for a company to have a science and technology 'interest' at the Board level. The Committee's mandate[23] was as follows.

> *The Science and Technology Committee is composed entirely of independent directors. The committee's primary responsibilities are to: review the company's technology and innovation strategies and approaches, including the impact of the company's performance, growth and competitive position; assist the Board in overseeing GE's investments and initiatives in science, technology and software; review science and technology trends that could significantly affect the company and the industries in which it operates; and oversee the direction and effectiveness of the company's R&D operations.*

Under Flannery, the number of Board members has been reduced to 12 from 18 and, more significantly, the new Board members would have 'industry experience. Of the 12 members, three would be new. The implication is that the Board, under Immelt's tenure did not have industry experience; great guys but unqualified in terms of understanding GE's industry, especially with the rapid swing to 'digital' and the need for action as markets shifted.

Under Flannery, a new Board Committee, the Finance and Capital Allocation committee has been established[24]; and the message is clear. Cash!

The presence of the first committee was to send a message to investors and more importantly to stakeholders including employees that the company was serious about science and technology and that innovation plays an important role in the future of the company. The new message is that cash is king!

[23] GE Annual Report 2013
[24] GE Investor relations presentation; November 13, 2017

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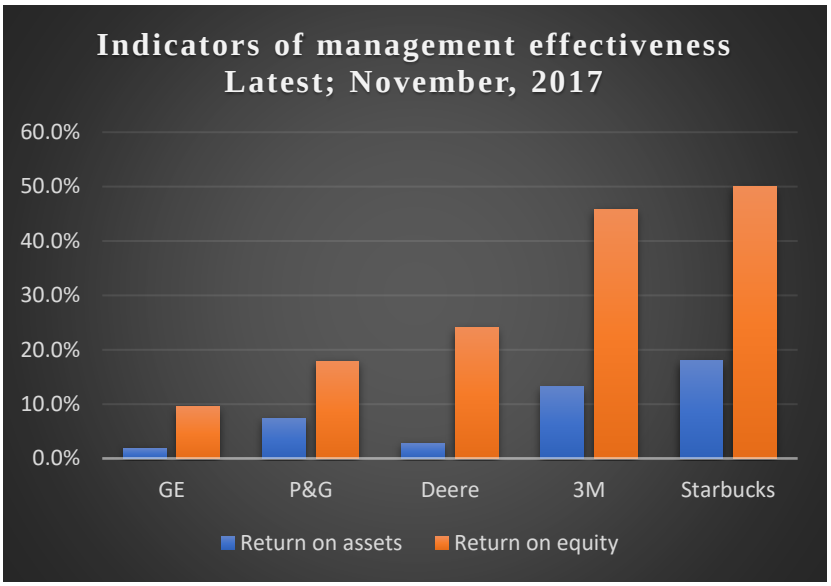
Is GE too big?

Largest in CIO's group of five but with the worst financial performance

Size may have a lot to do with current financial problems.

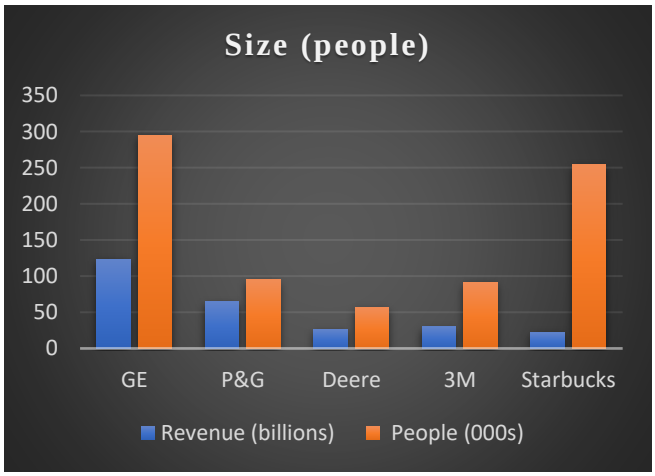
CIO compared GE with four other companies; Starbucks, P&G, Deere & Co., and 3M. GE's financial performance does not compare well with any of these companies. Return on assets and return on equity are the lowest of the group.



While is not fair to compare GE to Starbucks – their businesses are so different – there are good reasons for comparing GE to the other three companies, two of which, 3M and P&G, are also highly-diversified and therefore challenging to manage; much more so than Starbucks.

CIO's conclusion is that GE could learn a few things about the management of innovation from the better performers in this group; notably 3M.

GE ranks close to our 'Best of Breed' when it comes to having ideas, policies and management practices, which encourage entrepreneurship and innovation so there is something else at work which contributes to the relatively poor financial performance. Could this be GE's size coupled with the complexity of its business? Or is it that the strategy adopted by Immelt, i.e. global expansion and not being on top of developments in the Power Division, miscalculated the implication of acquisitions and the cultural impact on GE.



Why is 3M's financial performance so much better than that of GE over the last ten years. CIO's sets out to understand the differences between the two companies which, if identified, could point GE, under John Flannery, in the right direction for the next decade.

Flannery promised a 'comprehensive review' of all business segments to be carried out "with speed, urgency and no constraints". The results of the first of these reviews was conveyed during

the recent Investor Relations presentation but, not surprisingly was the comment that the review process is ongoing.

GE compared to 3M

Five 'Factors' to think about

Factor[25] differences suggest new directions[26]. Five 'Factors' stand out as being different as between 3M and GE. It is these Factors which could well indicate a direction GE needs to move in order to restore its reputation for innovation and the characteristics which have contributed to GE's reputation over decades.

'Factor'	GE compared to 3M
3. Management's has tolerance for mavericks or not.	No evidence to conclude either way but 3M makes a point of recognizing mavericks.
8. Corporation is tolerant towards variances from the corporate norm or not.	GE has a fairly strict set of guidelines but not meant to interfere with innovation.
14. The corporation has specific mechanisms available for rewarding innovation or not.	No evidence to conclude either way. Under Immelt, the top 190 managers are now on cash-based incentives but how about 'innovators'?
18. The organization has a decentralized or centralized hierarchy.	Was seen to be too highly centralized but, under Immelt, attempting to remove layers of 'checkers'.
23. The R&D budget is less or more than the competition.	R&D spending has been increased in recent years and is above competitor levels at least for the aviation segment.

The fact that GE does not make as much about its tolerance for mavericks, as does 3M, may not be significant but there is no doubt that there is a subtle message that suggests GE is more oriented towards a corporate norm than is 3M. The degree of rigidity comes naturally to a larger organization but is precisely the reason that large organizations in particular need to invest transparently in innovation management.

3M, is CIO's choice as having the best approach to managing innovation[27]. Another source for good ideas for managing in this age of millennials is Google, whose practices are summarized in Appendix C.

[25] 'Factors' definitions are available on the web site
[26] For the full report; Searching for why GE's financial performance has lagged over the last decade visit www. Dated June 22, 2017
[27] For the full IM (Innovation management) report visit the web site and download the latest 3M report on 3M

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The Future

Predix et al is a major contributor to GE's future

Immelt was taking steps to swing the emphasis back to what one would consider to be GE's traditional innovation – i.e. with a greater emphasis on embracing new ideas, relying more on organic growth and not so much on the achievement of short-term profits. Immelt also had a good understanding of the type of businesses/industries which fit with the long-established culture within GE. The financial trading and entertainment businesses obviously did not fit Power fits but has currently lacklustre performance.

GE's management priorities are changing. The subtler business of changing the culture has begun. HQ has moved[28] from suburban Connecticut to Boston. The learning atmosphere must be better and the ability to attract talent a major draw.

Predix has to be regarded as a major breakthrough for GE and will continue to influence the development of the company.

There are two cross-over developments which show how the worlds of coding, software and electronics are invading established players in traditional industries. These are the changes which are being responded to by GE. The development of the autonomous car, while initially credited to Google, is now being worked on by the big OEMs. Apple has been rumoured to be working on designing and building a car. IT companies, under the mantra of 'big data', are making inroads into traditional industries.

GE's move is similar, but the move is not so much an offensive strategy but rather defensive in the sense that by this newest initiative GE will forestall or eliminate intrusions into their industries from 'IT' big-data companies. Such developments would not have been thought about a decade ago but, no surprise, the world is changing and fast.

Ironically, one of the appeals offered by GE to software entrepreneurial types is the chance to get away for the non-stop invention of apps for all manner and means of what some would regard as somewhat trivial ways to spend your free time; e.g. solitaire, war games, etc. Flannery appreciates this draw for new employees when he states that he wants GE to not only be smaller, simpler and best in class but also work on projects which are 'essential to modern life[29]'. With GE, there is a chance to work on applying software to the heady stuff of GE's remaining business segments and bring about significant change for GE and for society. Such a vision has a lot of meaning not just for GE but also for so many other companies who, because they deal with real end-users, know and understand the intricacies of their industry. GE, if successful, will become the dominant IT company for their targeted industries.

While high-tech companies such as Cisco and IBM have made great strides in the use of coding and algorithms, the prevalence of the knowledge of coding, electronics, and big data may now be subsumed by actual 'operating' companies like GE which deal with on-the-ground operations.

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[28] Bloomberg, Move Fast and Break Things by Devin Leonard and Rick Clough
[29] GE Investor relations, November 13, 2017

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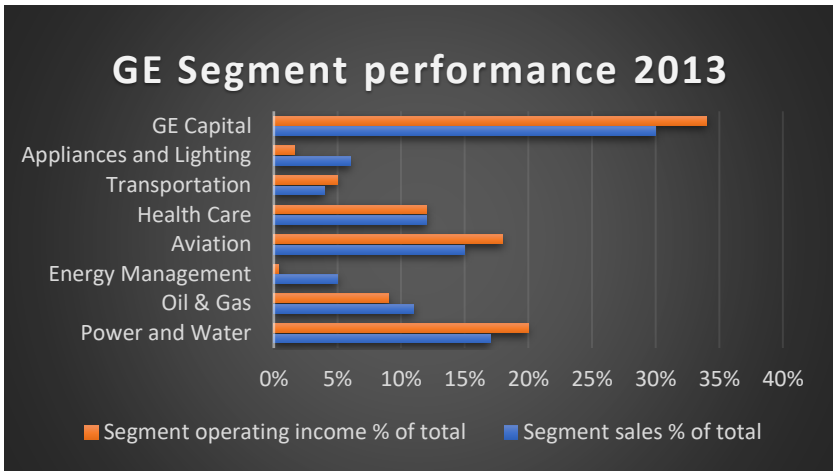
The ability to code and build software is becoming pervasive throughout every industry and GE wants its share of this business.

While the conglomerate business model is falling out of fashion and a discount is most often applied to such concerns, it might be that the substantial investment in Predix and its continued development will provide the synergy that is often not found in typical conglomerate models.

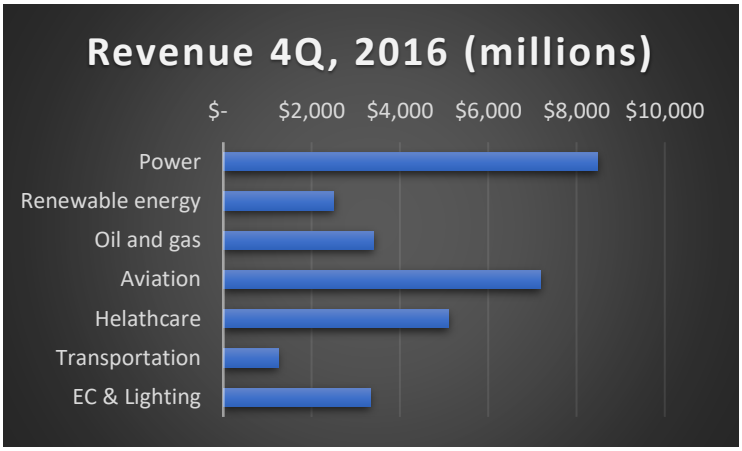
Appendix A
Brief profile of GE



GE, in 2013, looked like this. GE Capital was the major contributor to both revenue and operating income.

GE stated that 'About one-third of our infrastructure revenues comes from business we weren't in a decade ago'. Strategically, GE was positioning itself as an energy and infrastructure company.

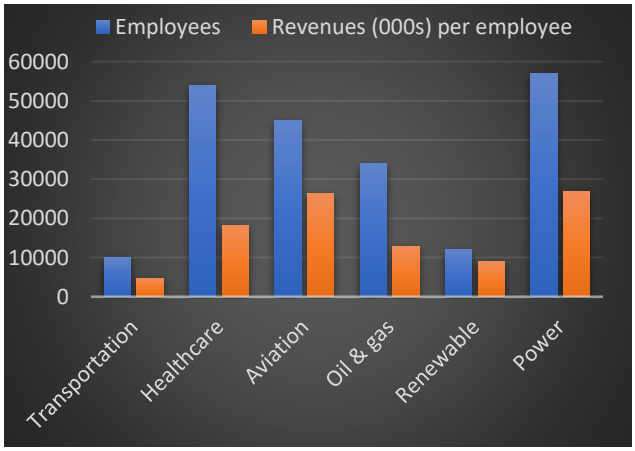
Since 2013, GE capital has been drastically diminished, Appliances have been sold and Alstom has been acquired.



GE is currently[30] comprised of seven business segments; power, aviation, health care, lighting, oil and gas, renewable energy and transport.

The largest businesses in terms of revenue are power, aviation and health care accounting for over 60% of total revenue. In terms of prospective revenue and profit

The change is reflected in the chart showing GE's segment make up in 2013 and comparing this with the most recent quarterly results by business segment.



Power, Aviation and Healthcare are the dominant industries. Eighty-five percent of revenues derive from aviation, power, healthcare and transportation[31]. Both transportation and renewables suffer from 'margin challenges' and Alstom performed below expectations partly due to employment guarantees in France.

[30] GE Annual report of 2016
[31] GE Investor relations presentation; November 13, 2017.

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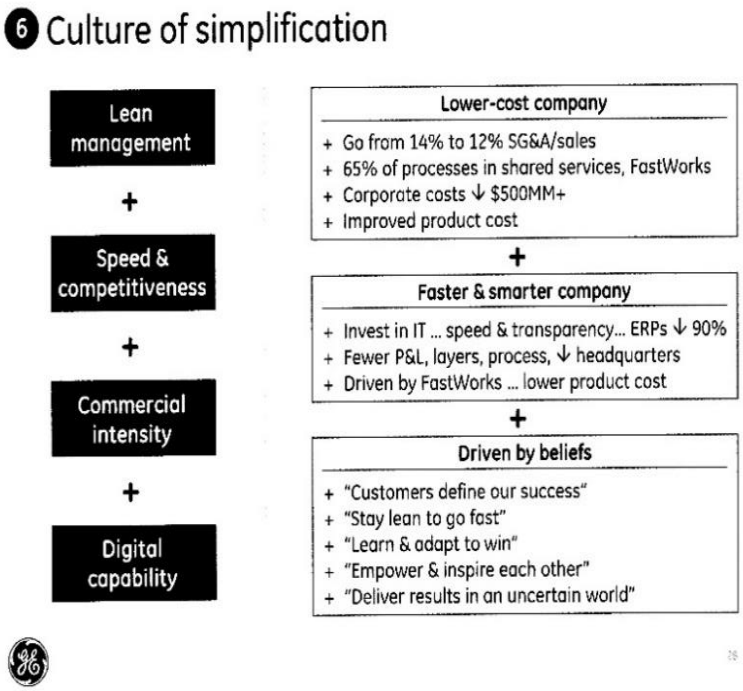
Appendix B
Simplicity and Pivoting

GE has always been a hot bed for the development of new management techniques but, allegedly[32] GE became unfocussed and 'overly' bureaucratic. GE has, according to the article an 'intrinsically rigid structure'

CIO is not sure of the basis of these comments but some of GE's more recent initiatives; *the need to change, to delegate and to simplify the business* seem to support the accusations.



Simplicity

Simplicity can mean many things, but one can interpret this to mean, at least in part, to decentralize, to speed up decision making (but keep the financial rigour in work groups and others to get things done; all characteristics which are associated with the management practices of highly-innovative, idea-intensive companies.

Immelt's strategic direction towards 'simplicity' may well have been motivated by an attempt to address the root of GE's past poor financial performance. The 'Simplification' initiatives were a recognition that 'GE was becoming too complicated'[33]. The theme[34], articulated at the time, by Immelt and now by Flannery, is referred to as 'Simplification'.

3M might already have achieved what GE refers to as its move to 'simplicity'. Decentralization, accountability, core concepts of management have been entrenched in 3M's culture since its founding.

[32] Report by Nelson Peltz's Train Partners – October 2015
[33] The New GE Way
[34] ibid

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Pivoting

Under Immelt, the newest action word was 'pivoting', i.e. when new information arrives and a change in direction is called for, that is the time to act; just like venture capital managers and entrepreneurs.

Immelt's examination of venture capital organizations and how they manage their investments provided insights into 'pivot' management practices.

- Take on fewer 'things' but do a better job and choose those with a bigger impact
- Position decision makers closer to the action and delegate responsibility and accountability
- Remove the sense of a 'headquarters' and layers of 'checkers'
- Move faster on decision making – but keep accountability intact

The word used to explain this new management practices is 'pivot'. Try things in the market place but be prepared to change once customer reaction makes it clear that something different needs to be done.

CIO's review of Starbucks[35] refers to this approach as 'controlled innovation'. Innovate, listen, change and go back and adjust and act quickly.

Five-year plans are less of a feature because change is omnipresent and rapid, 'pivot', i.e. try, make mistakes then correct is what is now in. This approach can only work where decentralization – not a feature of many large companies – is taking place or is an already accepted way of managing as in the case of 3M. The emphasis is off five-year strategic planning.

[35] See report on Starbucks and note its 'controlled innovation'

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Appendix C
Hints for GE; from Google

Google/Alphabet innovation management characteristics

Google manages its innovation through a combination of management practices, some new and some old, but updated by technology and a distinct nod toward openness and transparency the likes of which the corporate world has not experienced.

Google's style of managing innovation[36] brings to light a changing approach to management addressing the dynamics of today's corporations.

Four major characteristics.

The importance of transparency internally and externally

- Extreme openness and transparency where closely-held information and communication were more the norm decades ago
- Physical office arrangements to encourage *crowding* and the exchange of ideas and information in general
- Plan dissemination to all of Google's employees – with some obvious exceptions
- Optimal use of technology to facilitate the sharing of information and the communication of ideas and 'correspondence'.
- A clear statement about the need for a focus on short term financial performance versus long term. The company was not about 'maximizing the short-term value and marketability of their stock'

The need to create a sense of urgency

- Instilling a bias for action as opposed to incurring long periods for review. The notion is that 'smart creative' types will resolve problems once the project is underway
- Frequent meetings to instill a sense of momentum and urgency
- Quarterly reviews for presentation to the Board followed by wide distribution of content

[36] See paper, 30 pages, December 2014 on Googles management. Available on the web site.

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A clear focus on edginess – the heart of innovation

- The notion of operating as a university rather than a corporate bureaucracy is at the heart of Google's intent with the focus on research and managing a diversity of ideas
- Board presentations which draw on the persons responsible for the idea rather than a 'management type'
- A question posed front and centre to any review; What is the technical insight upon which features will be built?
- Projections based on 'faith' and less so on financial data
- The focus of efforts based on Pasteur's model[37]
- Investment allocations are 70% for core products, 20% for emerging products, and 10% for the 'unknown'.
- Little emphasis on the need for market research nor channel strategies.
- Data, and its use, not by 'management types' but by those who know the product/service intimately.

Flexibility in organizational design

- Applying the rule of seven to avoid micro management
- Emphasizing a functional organization to avoid the creation of silos
- A focus on relationships and not on hierarchy
- Hiring excellence as one might wish for in a university setting – the need for bright minds dominates hiring practices
- A flat organization facilitated using technology
- Strategy presentations, at all levels including with the Board, are made by those who have a full knowledge of the inner workings of products and services – not some *'management type'*
- Use of OKR's – management by objectives under a different guise.
- Platforms, not products or services, are the focus of strategic planning
- Strategic plans are used to reinforce organizational alignment

Google works because of a combination of strategy, culture[38] and hiring excellence.

Google's style of managing innovation[39] of brings to light a changing approach to management which addresses the dynamics of today's corporations.

[37] See full report for a discussion of Pasteur's model
[38] Defined by Google as the 'rails' of the organization and its 'basis for everything'
[39] See Googles management on the web site