CIO – Corporate innovation online
Innovation management best practices

What happens now that Flannery, an insider, is gone?[1] Culp as CEO.

November 25, 2018

Quick Summary

A red flag is raised as the company struggles with cash issues. Expect major changes to the style of management, centralized R&D, digitization initiatives and possibly GE's reputation for innovation management.

Danaher is different from GE not only is terms of size, geographic spread, and complexity but also in terms of its culture. Both GE and Danaher have deep-rooted cultures. Culp, steeped in the Danaher culture, needs to avoid a culture clash.

This paper explores the impact on GE (a CIO pick as one of the world's most innovative companies) as Culp, with his experience at Danaher, brings new ideas to encourage entrepreneurship; a challenge that faced Immelt during his tenure.

Contents

Background

CIO picked GE as a highly innovative company; one of five outstanding companies.

CIO published its last update on GE in December of 2017 on the appointment of Flannery. Flannery was deeply committed to investment in research and development and placed a priority on keeping GE innovative. Not too dissimilar to the priorities under Immelt.

But now, just short of a year, Flannery is gone, and Larry Culp is in place. GE's first 'outsider' in its history. Aggressive action is required by Culp and the Board to restore financial health. The dividend is down dramatically as is the stock price.

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[1] For the story of innovation management at GE up until Flannery's appointment, please visit the web site and download the most recent GE IM report.

During an investor relations presentation[2], and 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; one in New Jersey and the other in India. Spending, especially centralized R&D might have been a target for some CEOs, given GE's financial predicament, but not so for Flannery.

The focus of potential divestitures such as Lighting and Industrial Solutions, would not, under Flannery, 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 would bring into focus areas for cost reduction and asset optimization. The major segments of GE's business, Aviation and Health Care were, CIO reported at the time, unlikely to be impacted by ongoing restructuring. Flannery left Health Care in good shape and Aviation has its own deeply-entrenched culture for innovation as is necessitated in order to be in this industry.

Flannery saw the postponement of Immelt's global vision and a retrenchment focussed on cash. Cash was to be king under Flannery. Not bad ideas for this American icon given its then current predicament.

Larry Culp is the new CEO and Chairman of GE, the first outsider in the history of GE. This report explores what might be in store for GE.

Culp at Danaher

At Danaher during aggressive growth by acquisition

Culp joined Danaher in 1990 and served as CEO from 2001 to 2014. During this time – till December 31, 2014, the stock almost quintupled.

Culp's approach at Danaher may provide lessons for what now may occur at G.E. but the two companies have a different history and maybe, likely, dramatically different cultures.

Culp was at Danaher for close to 13 years; years which were formative in the company's approach to growth and innovation and the evolution of DPS. Danaher's business model – with respect to innovation management – is quite different from that of GE.

Starting out as a real estate company in the early 1980s, the company founders found success in acquiring manufacturing companies, improving their performance and keeping them in their portfolio. At the time Culp joined in 1990 the company had a market cap of $400 million. Currently the market cap is $72 billion[3].

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[2] GE Investor update, November 13, 2017, John Flannery et al.
[3] Yahoo Finance; November 24, 2018.

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Danaher currently has four main business segments as set out below. Environmental issues, water quality, packaging, life sciences, healthcare and even dental implants are but several of the industry areas included in this diverse 28-division portfolio.

Danaher Corporation Business segment; n	**Revenue**	**Operating margin**	**R&D**	**R&D as % of Revenue**	**Number of divisions**
Year end December 31,2017	$billions		$millions		
Life Sciences	$ 5.70	17.6%	$ 295.5	5.18%	7
Diagnostics	$ 5.60	14.9%	$ 471.2	8.41%	5
Dental	$ 2.80	40.0%	$ 172.0	6.14%	4
Environmental and applied solutions	$ 4.00	23.0%	$ 187.9	4.70%	12
Total	**$ 18.10**		**$ 1,126.6**	**6.22%**	**28**

Danaher, as evidenced in its annual reports and on-line interviews with senior executives have a growing and successful business but different than GE in many respects.

- Danaher runs a highly decentralized model. With total sales of $18 billion, Danaher has roughly 28 business units, each focussed on a market segment. To the outsider, there could be some overlap among divisions; a not unexpected consequence of a company which has grown through acquisition.

- R&D spending is substantial and emphasized in annual reports. All divisions spend substantial sums on R&D; average at 6.22% of revenue for the corporation as a whole.

- R&D spending is 'on a business-by-business basis with only some[4] 'activities undertaken on a centralized basis'. Post Culp, the company established a new Danaher Innovation Centre in Cambridge, Massachusetts, focussed on Life Sciences.

- Business units focus on identifying customer needs and predict future needs and preferences. Not an original idea for sure but the words suggest that Danaher takes a longer-term view than many companies. Reports make it clear that they may act like a venture capital firm but with one big difference; they hold on to the company.

- Much of the revenue growth has been the result of acquisitions of a certain size and not with large companies such as GE's successful but now troubled acquisition of Alstom.

[4] Danaher annual report, December 31, 2017

- Danaher's acquisitions have included very focussed companies outside the U.S.; in Germany, Sweden, Belgium, the U.K., Canada, Denmark and China in the Dental segment. Mittelstand-like companies seem to be the type of companies Danaher targets.

- The company is managed according to a 'disciplined application of DBS'; referred elsewhere to as "running the Danaher playbook", or the Danaher Business System.

- Lean manufacturing is emphasized.

- Credit is given to the 'effectiveness of our (Danaher's) succession planning processes" and the value in appointing from internal staff. GE had the same core value until now.

In many respects, the Danaher model may align with what Jeff Immelt was trying to do with GE during the second half of his 16-year term. Simplicity was the theme but overcoming bureaucracy was a major challenge. Entrepreneurship was to be encouraged. Immelt talked about what he had learned from visiting venture capital firms across North America. There were obvious difficulties in bringing this change into the GE culture.

GE IM Report
February 25, 2017 (Pre Flannery)
Available on the web site

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Danaher Business System (DBS)

Danaher's 'competitive advantage'

Larry Culp, in the early 2000s asked one of his people 'to lead a team to identify opportunities for organic growth' – based on an analysis that correlated organic growth with superior shareholder value. In the process a team visited at least two other companies with established reputations for innovation, Procter and Gamble and Starbucks. CIO has published reports on both these companies, chosen for their reputation, focussing on innovation management.

DBS is praised heavily by the current CEO (Joyce) and is seen by him as their 'competitive advantage'[5]. The system[6] is well described in the literature available on the net and from company reports and documents. The company prides itself on both the setting up of DBS and

[5] Danaher has built itself into a remarkably successful business over four decades by acquiring and integrating new companies into a unified whole while improving them through a group of distinctive management practices known as the Danaher Business System (DBS),
[6] Modeled after the Japanese quality movement

the idea that the system has been flexible to develop over the last two decades. The use and executive dedication to the system cannot help but have influence Culp and his approach to management at GE

Key characteristics[7] of DBS are;

- Metrics everywhere; 'incredibly metric-oriented'. Akin to Bezos at Amazon.
- Divesting is not the model. [8] Acquire, improve and hold is. Rarely sell.
- Based on *kaizen* (continuous improvement) along with *hoshin* meetings, i.e. structured sessions used to assess progress toward previously agreed upon goals.
- CEO posted notes everyday on the intranet on progress etc. Blogging about *kaisens.*
- Senior managers rated each year on their proficiency with the DBS tools.
- Use of an annual leadership conference; three days on best practices. State the problem, root cause, counter measures, what to do differently, coupled with an email and phone number for follow up. Tight management and attention to follow up.
- The top 25 executives all teach two or more weeks per year to reinforce the DBS
- The DBS tools are part of the culture.
- MBO and Six Sigma are regarded as 'fads.
- Operating reviews are held at the local level, not at the HQ.
- Acquisition only if Danaher can become one of the leaders in the industry. At any point in time there are cultivating 200 target companies.
- Culture acceptance is a measure for all new hires. On acquisition, it may take one to two years to ingest the culture.
- DBS is not a rigid set of tools but evolves over time as tools and approaches are added with the full involvement of the group.

Danaher also has eight core values. Beyond the four 'Shareholder-facing metrics; core growth, operating margin expansion, working capital returns and return on invested capital are 'on-time delivery, external quality, as well as associate-facing metrics, internal fill rate (percentage of positions filled by internal candidates) and retention – of top talent.

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[7]. An *s+b* Roundtable: Highly focused and diversified, this industrial company grows through acquisition, customer-facing innovation, and continuous improvement. An article with participants from senior ranks
[8] Thomas P. Joyce Jr., President and CEO

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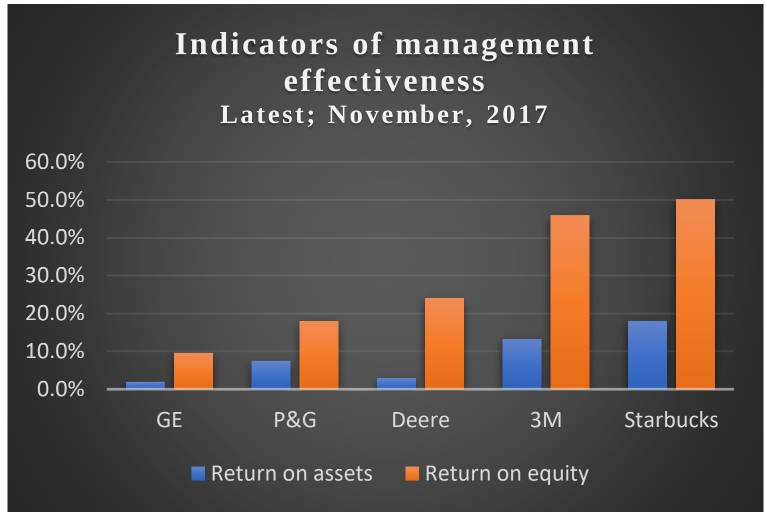
GE in retrospect

On-going problems with financial performance

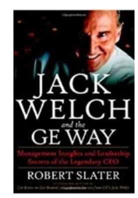


CIO, on setting up this web site, chose GE along with four other highly respected innovation companies. These companies would be studied, and reports made available on line.

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

Times have changed and the styles of management at GE have varied over the past decades.

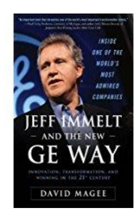
A brief profile of GE from 2013 to 2017 is provided in Appendix A.



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[9] was 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's style was, over time, shown to be different from that of Welch. Immelt's approach to fostering innovation was, as the first step, to 'prepare the organization to innovate[10] 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.

[9] The New GE Way by David Magee p. 13.
[10] Ibid, p. 108.

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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’[11]. The style, at the time, seemed consistent with the need to encourage organic growth and deemphasize growth by acquisition.

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, as a result, 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.

GE’s management priorities were changing. The subtler business of changing the culture began. HQ had moved[12] from suburban Connecticut to Boston. The learning atmosphere would be better and the ability to attract talent a major draw.

Immelt was also bent on making GE less complex, simpler, from the standpoint of management. Several of Immelt’s ideas came from his 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[13], which does just that, this approach is referred to as ‘controlled innovation’. Innovate, listen, change and go back and adjust and act quickly.

Flannery’s style, not that this was other than demanded by poor financial performance, was in sharp contrast to that of Immelt. No more global designs that do not generate cash!

Flannery promised a ‘comprehensive review’ of all business segments to be carried out “with speed, urgency and no constraints”. Flannery spoke[14] to the need for GE to be smaller, simpler, best in class and to undertake projects which are ‘essential to life’. At the time of Flannery’s departure, the review process was well underway.

All three CEOs had to deal with **GE’s in-bred 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

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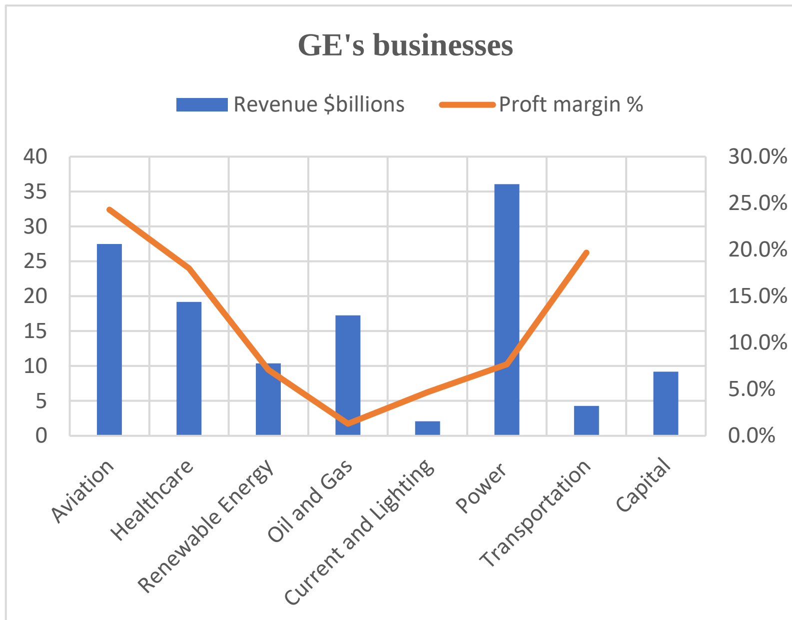
[11] ibid, p.137.
[12] Bloomberg, Move Fast and Break Things by Devin Leonard and Rick Clough
[13] See report on Starbucks and note its ‘controlled innovation’
[14] Investor relations conference, November 13, 2017

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[15]. Culp will have to contend with GE's culture as he moves to make major changes.

GE differences from Danaher

Size, culture, style make for significant differences



Danaher has **grown by acquisition** over its 30-year history. Danaher acquired 10 businesses in 2017 for an investment of $386 million in cash. In 2016 acquisitions required $4,880 millions and year before – 2015 – the sum of $14,247.

In term of **total revenue**, GE is seven **times larger** than Danaher. Danaher's sales in 2017 were from North America 40%, Europe 28%, Asia/Australia 24% and all other at 8%. GE, on the other hand, operates around the world.

GE's has 300,000 people compared to 67,000 for Danaher which has 67,000 full time employees, Importantly, 23,000 are in the U.S. and 44,000 are outside the U.S.

Spending on R&D is relatively consistent (a low of 4.7% in the environmental area to 6.14& in the Dental segment. GE's spending varies, according to need, from virtually nothing on Current and Lighting, 2.7% in Power to 7.4% in Aviation indicating clearly the different complexities of the businesses in GE.

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. Under Immelt GE's reputation for innovation was restored to top 10[16] filers of patents in the U.S., a position which had lapsed during Welch's term.

[15] The New GE Way, by David Magee
[16] GE Annual Report; 2012

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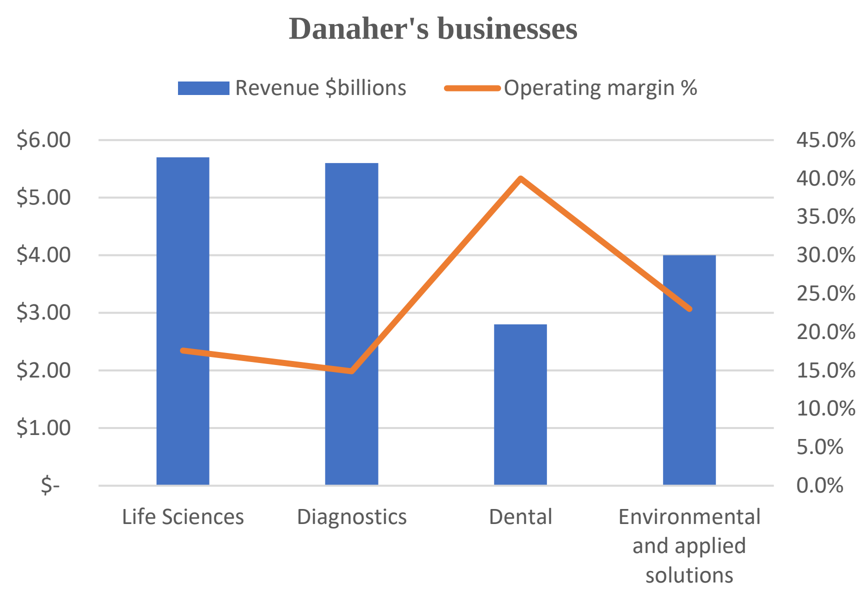
Culture. GE personnel believe so strongly in their culture that the 'promote-from-within' mantra took hold years ago. Even with the current financial crunch, the choice had been to hire from the inside as a means of ensuring that the culture is carried forward from one generation of leadership to the 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'[17]. Learning is the force that drives the culture[18].



So, it was thought! Each CEO eventually inculcates his way of managing. Flannery never had enough time to make his mark.

Board arrangements. Under Flannery, the number of Board members was reduced to 12 from 18[19] 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 fully understanding GE's industry, especially with the rapid swing to 'digital' and the need for action as markets shifted.

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. Under Flannery, a new Board Committee, the Finance and Capital Allocation committee was established[20]; and the message was 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, under Flannery was that **cash would be king**!

Contrast the styles of Welch and Immelt; Welch 'pushed managers, sometimes lashing verbally', Immelt 'typically coaches and coaxes managers'[21]. Immelt's vision changed over the intervening

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[17] ibid, p. 167.
[18] ibid, p. 169.
[19] GE's Board is currently comprised of 11 directors, of which 10 are independent
[20] GE Investor relations presentation; November 13, 2017
[21] The New GE Way by David Magee p. 135.

Building, sustaining and articulating innovation management best practices

years; 2009 to 2014? There were some signs that GE was adopting a less emphasis on organic growth and more on making 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.

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. Under Culp, this visionary idea will be postponed.

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'. Cash now replaces vision – for time being.

Immelt's term as CEO came 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.

What now? GE under Culp

Expect major changes

Larry Culp was appointed CEO and Chairman on October 1st. Most significantly, he joined the Board of Directors in April 2018. This allowed the Board six months to get to know their next CEO and to be comfortable with his views on how to manage scientifically-oriented businesses. Obviously, he impressed the Board. Since retiring from Danaher in 2014, Culp has been a Senior Lecturer at Harvard Business School,

GE needs to raise capital and **divestitures** are the primary source of funds[22]. Prior to Flannery's departure the game plan had been hatched. Baker Hughes would be divested over time. Maybe Healthcare would be spun off but with GE retaining an interest. Capital wold be gone by 2020. Flannery announced 'at least 17 divestitures' were in the works with $13 billion on the line. News sources suggest that there was a need to speed up the process and Flannery had a slower plan, unsatisfactory to the Board. To be retained were; power, renewable energy, and aviation.

[22] Bloomberg, October 8, 2018, GE's Shock CEO Ouster Leaves Billions in Disposals Up for Grabs

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Predix, one of the most significant investments under Immelt in his desire to move GE into the digital age, took up a large part of the corporate level investment in recent years. Under Flannery, digital investment in part was to be reorganized for part sale to interested parties.

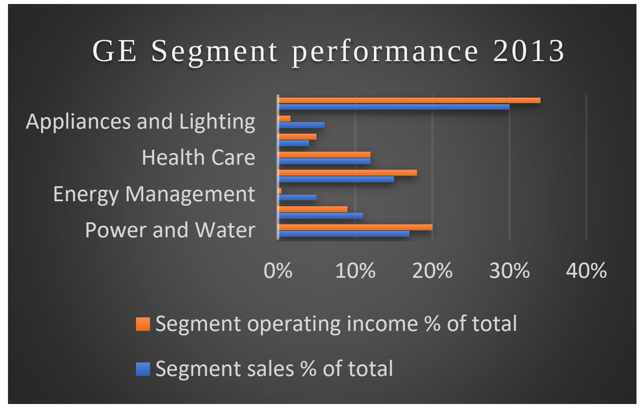
Style with an emphasis on the use of metrics at all levels of management is to be expected. The atmosphere – the culture - at GE will shift with the emphasis on metrics. Amazon has a management style heavily dependant on the use of metrics for any number of activities. Such an emphasis can change an organization by building pressure to perform over the short term. There is every reason to believe that this will take on a new, yet to be determined, form at GE.

Reorganization into smaller, more focussed units is likely. Danaher is comprised of smaller entities largely the result of numerous acquisitions over their 3-year history. Culp will seek to decentralize the management process to the lowest level practical in the GE case. How this will happen is anybody’s guess at the moment but there is a belief that smaller ‘enterprises’ are easier to manage. Smaller enterprises are also easier to review and keep track of from a corporate perspective.

GE’s spending on corporate activities, including centralized R&D and digital investment accounts for $672 million. Expect a line-by-line review of anything ‘centralized. Culp is inclined towards decentralization.

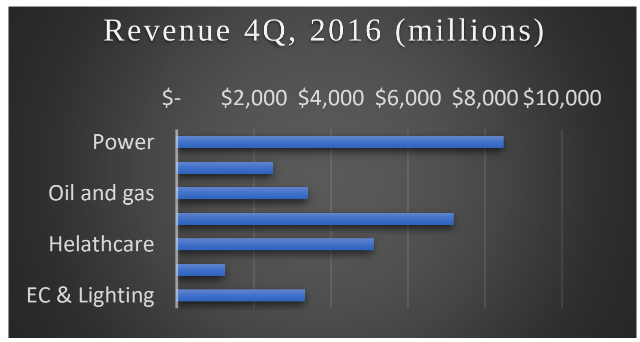
Other ideas for moving forward could come from the style of management exhibited by Google – see Appendix B – or, and according to CIO, drawing on the best practices of 3M.

Appendix A
Brief profile of GE; 2013 to 2018



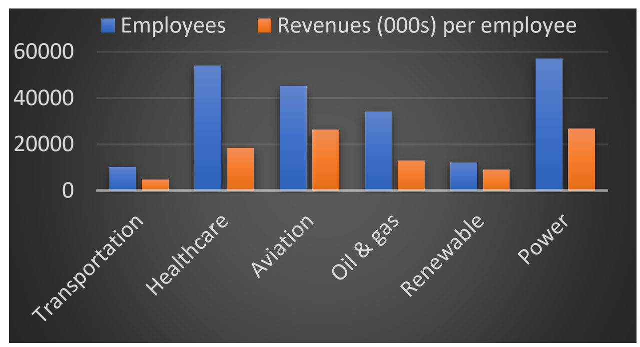
GE, in 2013, looked like this. GE Capital was the major contributor to both revenue and operating income.

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.



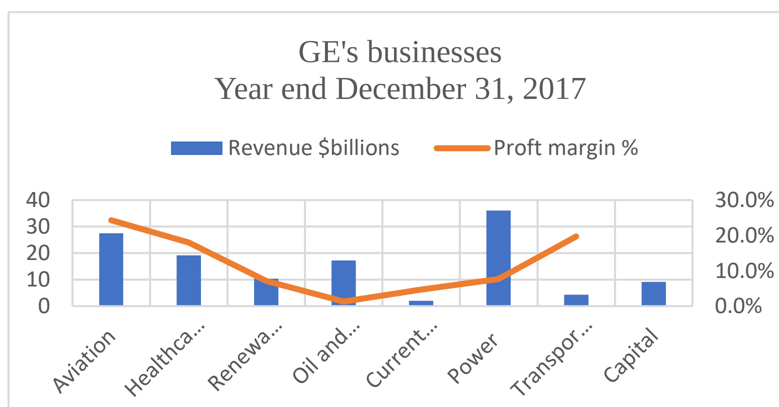
Since 2013, GE capital has been drastically diminished, Appliances have been sold and Alstom has been acquired.

GE in 2016 was[23] comprised of seven business segments; power, aviation, health care, lighting, oil and gas, renewable energy and transport.



The largest businesses in terms of revenue were 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 were the dominant industries. Eighty-five percent of revenues derive from aviation, power, healthcare and transportation[24]. Both transportation and renewables suffer from ‘margin challenges’ and Alstom performed below expectations partly due to employment guarantees in France.

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

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Appendix B
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[25] 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

[25] 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[26]
- 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[27] and hiring excellence.

Google's style of managing innovation[28] of brings to light a changing approach to management which addresses the dynamics of today's corporations.

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