Aligning Johnson Controls’ Operations to Sustainable Development Goals

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Executive Summary

In 2015, the United Nations (UN) developed 17 Sustainable Development Goals (SDGs) aimed at improving the environment, social welfare and economic status of the globe. Johnson Controls has adopted sustainable practices into its operations and aims to align with as many of the goals as possible. The project team has joined Johnson Controls to develop a framework that will compare the company’s activities and initiatives with the UN SDGs. The absence of such a framework limits the use of sustainability data to its maximum potential. The project resulted in a report with recommendations for cooperative strategies and new initiatives like partnerships with global sustainability organizations.

The project team has analyzed published reports by Johnson Controls. These reports include information about the company’s resource distribution, finances and policy development. All SDGs have been classified as primary, secondary or tertiary based on their relevance to Johnson Controls’ activities. The team has identified 3 primary, 5 secondary and 9 tertiary goals for Johnson Controls. The primary goals are SDG 7 (clean energy), SDG 8 (economic growth), SDG 12 (sustainable consumption and production) and SDG 13 (climate action). The secondary goals are SDG 3 (good health & well-being), SDG 6 (clean water and sanitation), SDG 9 (industry, innovation and infrastructure) and SDG 17 (partnership for growth). All other goals were classified as tertiary because they were not directly aligned with Johnson Controls.

Johnson Controls’ performance corresponding to SDG 7 (clean energy) target goals has been declining since 2014. Their energy efficiency has dropped, and they have reduced their use of renewable energy. However, their performance towards SDG 8 (economic growth) target goals have steadily improved since 2014. Providing decent work and pay for all people is what drives SDG 8. The ratio of full-time female employees is about one third of all full-time employees within the company. Female full-time employees earn close to, or more than men in certain countries. For SDG 12, the company has decreased its use of recycled materials, and increased the treatment of hazardous waste.

From this analysis, it is found that Johnson Controls is aligning with SDG 8. However, they are not aligned with SDGs 7 and 12. Progress can be made towards SDG 7 by investing in renewable energy sources by acquiring new services or through research and development (R&D). SDG 12 needs investments in modern, recyclable materials that are also environmentally friendly. The lack of data points limits the development of robust predictions about Johnson Controls’ performance in the coming years.
**Introduction**

On September 25th, 2015, countries around the world gathered at the United Nations (UN) Headquarters to adopt a set of Sustainable Development Goals (SDGs). These SDGs were drawn from the Millennium Development Goals (MDGs), which was a blueprint of eight goals that targeted issues like poverty and health (United Nations Millennium n.d.). SDGs were created to continue the work of the Millennium Development Goals. The new goals are a part of the new sustainable development agenda, which the United Nations has resolved to work towards fully implementing by 2030 (United Nations n.d.). Implementing this agenda requires taking a social, economic, and environmental approach at sustainable development. The 17 distinct goals were created to eliminate extreme poverty and hunger, use environmentally friendlier sources of water and energy and mitigate climate change, among other objectives (Sustainable 2015). Each goal has a set of targets and indicators to measure progress. Working towards these goals requires cooperation from governments, the global community, the private sector, and individuals all around the world. Each SDG and their description can be found in the appendix at the end of the report.

Integrating the SDGs into business strategies has become a dynamic topic for public and private sectors. A greater number of companies are advancing SDGs by aligning their own sustainability goals with the UN’s agenda. This is a trend that is projected to continue as companies become more open to engaging with SDGs (Make it your business 2015). Johnson Controls is one such company interested in aligning with these goals.

Johnson Controls is a multinational, multi-industrial leader in global technology. The company’s areas of focus include building management, batteries, and distributed energy storage. It serves an extensive range of customers. Johnson Controls is committed to creating a more productive, secure and sustainable future through its intelligent buildings, infrastructure, and efficient energy solutions. Sustainability is rooted in the company’s vision of a comfortable, safe and sustainable world (Learn n.d.). A commitment to sustainability continues to be of importance as new efficient technologies and solutions are developed. Johnson Controls publicly reports its sustainability data for the public to read and review. This ensures that the public and the company’s stakeholders stay well-informed of the company’s sustainability efforts and results.

Johnson Controls publishes its sustainability data through several reports including the Global Reporting Initiative (GRI), Sustainability report, and the Carbon Disclosure Project (CDP). However, there is missing information in these reports, resulting in the lack of a system for tracking and comparing their progress with the UN SDGs. For example, the GRI lacks an explanation of how the hazardous waste is treated, and whether treated hazardous waste contributes to the total amount of non-hazardous waste.

Johnson Controls has many competitors in various industries from which industry progression towards SDGs can be drawn. For example, Siemens competes with Johnson Controls in the energy sector. Siemens’ 2016 Sustainability Report indicates that they are tracking their progress towards achieving SDGs (Competition n.d.). As of 2016, their approach is to track their operations in eight countries around the globe: Argentina, China, Germany, Russia, Singapore, South Africa, Turkey, and the UK. Greenhouse gas (GHG) emissions is one of the parameters...
being tracked along their entire supply chain operation. Their goal is to improve energy efficiency and reduce GHG emissions. This is the first challenge mentioned in their sustainability portfolio (Kaser and Busch 2016). 3M competes with Johnson Controls in the manufacturing industry (Competition n.d.). 3M provides 2017 Sustainability Reports and a separate report for their metrics and progress.

According to 3M’s 2017 Sustainability Report, the company is tracking its progress towards aligning themselves with SDGs. In the metrics report the first unit measured is metric tons of CO₂ emitted. This data is provided for 2002, 2005, 2010, 2015, and 2016 (2017 Sustainability). Furthermore, 3M also reported its volatile organic compound emissions in metric tons and energy use in BTUs and MWh (2017 Metrics 2017). Magna International competes with Johnson Controls in the transportation industry (Competition n.d.). They do not provide an actual Sustainability Report, but they have an Environmental Statement (Performance 2016), Annual Report (Annual 2017), and a Toxic Substances Report for their facilities in Ontario (Magna n.d.). Comparing this information alongside Johnson Controls will help to evaluate company progress towards SDG alignment amongst their peers.

**Objective**

The objective of this project is to develop a systematic comparison of Johnson Controls’ activities and initiatives with the UN SDGs. The lack of such a framework prevents Johnson Controls from evaluating the effectiveness of their sustainability initiatives to their maximum potential. The results are presented as a comprehensive report that highlight areas of improvement, and gaps in reporting of sustainability information.

**Methodology**

The project is broken down into two major tasks that will guide the evaluation of Johnson Controls’ activities. The first task is aimed at collecting information from Johnson Controls’ public reports. The second task is aimed at assessing this information to see how Johnson Controls’ measures up against its peers in the industry (3M and Siemens).

**Task 1 - Collect information about Johnson Controls’ operations and UN SDGs.**

The first step was summarizing the SDGs and their targets to select relevant goals. Relevance of goals corresponds to how closely the SDG is related to Johnson Controls’ activities. Most relevant SDGs are primary (for example - energy efficiency), least relevant are tertiary (for example - eliminating poverty). Primary goals had a vast amount of qualitative and predominantly quantitative data. Secondary goals had some data, often a mix of both qualitative and quantitative data. Tertiary goals had very little data, which was mostly qualitative. Table 1 shows all the SDGs as primary, secondary or tertiary goals.
Table 1: Classification of UN SDGs based on their relevance to Johnson Controls’ activities

<table>
<thead>
<tr>
<th>Primary</th>
<th>Tertiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 - Clean Energy</td>
<td>1 - No Poverty</td>
</tr>
<tr>
<td>8 - Economic Growth</td>
<td>2 - Zero Hunger</td>
</tr>
<tr>
<td>12 - Responsible Consumption and Production Patterns</td>
<td>4 - Quality Education</td>
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<tr>
<td><strong>Secondary</strong></td>
<td>5 - Gender Equality</td>
</tr>
<tr>
<td>3 - Good Health &amp; Well-being</td>
<td>10 - Reduced Inequalities</td>
</tr>
<tr>
<td>6 - Clean Water and Sanitation</td>
<td>11 - Sustainable Cities and Communities</td>
</tr>
<tr>
<td>9 - Industry, Innovation and Infrastructure</td>
<td>14 - Life Below Water</td>
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<tr>
<td>13 - Climate Action</td>
<td>15 - Life on Land</td>
</tr>
<tr>
<td>17 - Partnerships for Growth</td>
<td>16 - Peace, Justice and Strong Institutions</td>
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**Task 2 - Matching data from Johnson Controls’ reports to the UN SDG targets**
The next step was analyzing public reports published by Johnson Controls to find data corresponding to SDGs. The following reports were analyzed:

a. Global Reporting Initiative (GRI) Report
   The GRI is an independent international organization that sets guidelines for standardized reporting of sustainability data (About GRI n.d.). These guidelines help businesses and governments report information on factors corresponding to multiple SDGs such as climate change, social well-being and economic performance among others.

b. Sustainability Report
   The Sustainability Report is a summary of the GRI report that focuses only on the energy consumption of Johnson Controls. It highlights the energy trends and forecasts energy consumption patterns in the future.

c. Carbon Disclosure Project (CDP) Report
   The CDP report will present Johnson Controls’ carbon usage. CDP is another international initiative that helps companies and government report environmental impact.

The progress towards SDG targets is discussed in the results section.

**Task 3 - Assess Johnson Controls’ progress over the years by comparing with 3M and Siemens**
Companies are legally required to publish the GRI and CDP reports every year. Johnson Controls’ GRI report has data starting in 2014. This data was graphed to see how it changed over the years. Similar data was gathered from 3M’s and Siemen’s GRI reports to see how the
Results and Discussion

For this project, the team identified 3 primary, 5 secondary and 9 tertiary goals for Johnson Controls (Table 1). The data was acquired from the GRI and Sustainability reports.

Primary goals:

SDG 7 promotes the use of clean and affordable energy. Three of its targets are directly related to Johnson Controls’ activities. The first one is increasing the share of renewable energy in total energy usage. This is quantified as the ratio of renewable energy used in Johnson Controls’ total energy usage from 0.64% in 2014 to 0.55% in 2016. This is an insignificant fraction and comes from only three data points. Projecting it 15 years into the future will not give an accurate projection of Johnson Controls’ renewable energy use. 3M had a similar fraction in 2015, but this went up to 8% in 2016. The reason for this spike seems to be a growth in corporate procurement of off-site renewables by 3M.

Another target in SDG 7 is expanding infrastructure and upgrading technology to supply modern and sustainable energy services. This is measured in terms of investments in energy efficiency. Johnson Controls did not quantify such investments in their GRI, but they pointed out that they purchase energy-efficient (Energy Star or EU labeled) equipment whenever appropriate. Energy conscious ventures like this takes Johnson Controls further along toward achieving the goal of clean energy. This progress is hard to quantify. Finally, the last target under SDG 7 is doubling the rate of improvement in energy efficiency. Energy efficiency is calculated as units of energy per unit of GDP. Since the GRI had data for three years, the change in energy intensity could be calculated for only two years (2014-15 and 2015-16). As seen in
Figure 2, Johnson Controls displays a positive and negative change in energy intensity. This data is not suitable for projecting into the future. 3M holds improvement in energy intensity stable at 2% while Siemens reports it only for 2016, at 18%. Johnson Controls is falling behind both these companies.

SDG 8 encompasses the ideals of promoting inclusive and sustainable economic growth, employment, and decent work for all. Decent work is defined as “opportunities for everyone to get work that is productive and delivers a fair income, security in the workplace, and social protection for families” (SDG8 PDF). One of the target goals is to provide equal pay and employment for all men and women regardless of sex, age, or disability. The indicators for this goal is tracking the average hourly earnings of both men and women by occupation, age, and persons with disabilities. According to the GRI report, Johnson Controls employed about 145,000 people as of 2016. Of those 145,000 employees, women accounted for about 42,000 of the total.
Worldwide, the ratio of women’s pay rate compared to men’s has steadily increased within the company since 2014 to 2016. In 2016, women were paid more than men in Canada within Johnson Controls.

SDG 12 was developed to ensure sustainable consumption and production patterns. Targets of the goal include reducing waste generation through recycling and reuse, and sound management of chemicals and wastes. One indicator for reducing waste generation is the recycling rate. As seen in Figure 5, the company’s recycling rate has decreased over a three-year period. In comparison to the recycling rates of Siemens and 3M, they are consistently lower throughout the time period.
For the target of sound management of chemicals and waste, the proportion of hazardous waste treated is an indicator that can be used to quantify progress. In Figure 6, the percentage of hazardous waste treated has increased within a three-year period. In comparison to Siemens and 3M, Johnson Controls has a significantly higher percentage of hazardous waste treated.
Secondary goals:

SDG 3 was developed to ensure healthy lives and promote well-being for all at all ages. One target of this goal is to achieve universal health coverage. An indicator for this target is the coverage of essential health services. In the GRI, benefits provided to full-time employees include insurance for the employee, their domestic partner and family. This insurance includes dental, vision, accidental death and dismemberment, and short and long-term disability. Employees are also given preventative healthcare programs, wellness/fitness programs, and access to onsite fitness and recreation facilities. Another indicator for this target is the amount of people covered by health insurance. In 2016, 99% of the company’s workforce was offered the above health care benefits. The effectiveness of the health care offered could not be measured since the number of sick days and other health indicators were not reported.

Another target for this goal is to strengthen the capacity for early warning, risk reduction and management of national and global health risks. Currently, the way that Johnson Controls measures and operates their Health and Safety programs is consistent with International Labor Organization’s Guidelines for Occupational Health Management Systems. Indicators used to assess their performance include the Occupational Safety and Health Administration Total Recordable Incident Rate and the Lost Time Incident Rate. Other indicators include, but are not limited to, job safety analysis completed, safety observations noted, and safety discussions held. An enterprise Environmental Health and Safety software system is used to track work-related injuries and unsafe acts. Of the total workforce, over 75% is represented in management-worker health and safety committees. In Figure 7, both the Injury Rate and the Lost Days Rate for the total workforce is shown. Over the past four years, the Injury Rate and the Lost Days Rate has decreased. A comparison could not be made to the industry due to the lack of reporting by competitors of Johnson Controls.

![Rate of Injury](image.png)

*Fig. 7 - Rates of injury for the total workforce.*
SDG 6 was included to ensure access to clean water and sanitation. While Johnson Controls doesn’t work towards ensuring global access, they do take measures to use water resources sustainably. They aim to reduce water intensity by 5% by 2020 by implementing water conservation measures. These measures include sensors to detect and repair water leaks, recalibrating flow meters, rainwater collection for irrigation, permeable pavers in parking lots, and geothermal cooling in some of their offices. Johnson Controls also offers products that save water such as water-cooling systems for industrial heat management. This system is designed to reduce water consumption by up to 80 percent while optimizing energy efficiency. Another project that highlights Johnson Controls’ water conservation is the central energy facility in Stanford University. This plant cut Stanford’s water use by 15%, saving an estimated $420 million in operational costs.

SDG 9 focuses on building resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation. Promoting inclusive and sustainable industrialization, and significantly raising industry’s share of employment and GDP is one of the target goals. Another is to increase resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes. Indicators for these goals include manufacturing value added as a proportion of GDP and per capita, CO2 emissions per unit of value added. In 2016, Johnson Controls had 68.6 metric tons of CO2 equivalent per million USD revenue. This amount is higher than their recorded number in 2013 at 54.1 metric tons of CO2 equivalent per million USD revenue. The Power Solutions and Automotive Experience business units are responsible for the manufacturing operations of JCI. These business units generated up to $24 billion combined in sales for 2016.

SDG 13 was developed to address climate change and to take urgent action against its impacts. The target goals range over policy changes towards climate change measures, strengthening resilience to climate-related hazards and natural disasters in all countries, and improving education and awareness of climate change globally. Some indicators for these targets include (1) the number of countries implementing national and local disaster risk reduction strategies, (2) number of countries implementing policies/strategies/plans to combat climate change, and (3) number of countries integrating climate change education into their primary, secondary and tertiary curricula. The UN Framework Convention is responsible for providing national reports on their efforts to implement the Paris Agreement. Johnson Controls operates in many of the countries that are contributing to these efforts. Some of the countries that are involved include, but are not limited to: Czech Republic, Germany, Canada, Slovakia and Mexico. As of April 2016, 70% of the countries in the Framework Convention have declared their efforts to combat climate change. Some of these efforts include changing national policies, strategies, and planning procedures that will reduce climate change (United Nations Framework Convention on Climate Change, 2017).

SDG 17 was developed to strengthen the implementation and revitalize the global partnership for sustainable development. One of its targets is to promote effective civil society, public, and public-private partnerships. An indicator for this target is the amount of dollars committed to these partnerships. In 2016, Johnson Controls partnered with 102 nonprofit organizations and provided $724,959 in sponsorships. For Johnson Controls, partnerships are academic, social, and environmental. The company has invested in more than 30 laboratories that have been dedicated to developing battery and energy storage technology. Johnson Controls also funded two new
projects and will be working with graduate student researchers at the University of Wisconsin-Madison to further fuel efficiency of vehicles. Socially, Johnson Controls has partnered with organizations through financial sponsorship and volunteer efforts. The company has also donated $2.5 million to the Annual Disaster Giving Program in the last five years. Additionally, the company has joined a partnership with the U.S. Department of Energy and other organizations to create the Joint Center for Energy Storage Research at Argonne National Laboratory.

Conclusion

In conclusion, we faced the following challenges in our analysis methods:

1) Extrapolation of available data - not feasible
   a) Data missing from earlier years
   b) If the missing information can be provided, then more accurate projections can be made

2) Benchmark company progress
   a) No accurate benchmarks can be projected
   b) If more data is available, it is possible to predict when the SDGs will be met at the current rate

3) Minor additions can be made to company reports. Including information such as the following will avoid misinterpretation of data.
   a) The number of sick days are not specified
   b) Amount of money spent on healthcare is not specified
   c) Hazardous waste treated was not specified
   d) Unclear if total amount of non-hazardous waste was affected by hazardous waste treatment

SDG 7 - Johnson Controls is not increasing its renewable energy use according to the data analyzed in this project. To align with the UN SDG target, they need to take some measures such as investing in R&D, acquiring off-site renewables (like 3M) or incorporating renewable energy in their existing practices. Johnson Controls should make older energy intensity data available to have enough data points to make predictions about the future improvements in energy intensity.

SDG 8 - Johnson Controls has steadily improved its numbers in full-time female employees, and the salary ratio between women and men. Continuing this trend will bring them closer to achieving this goal by 2030. Early involvement of STEM activities within primary education facilities can help to further this initiative. Putting an emphasis on young girls with early involvement in STEM activities is recommended.

SDG 12 - From the comparison of recycling rates and hazardous waste treated for Johnson Controls with its peers, it can be concluded that the company is not aligned with this goal. Its lower recycling rate and higher percentage of hazardous waste treated may be due to the nature of the company’s work. A recommendation would be to invest in technology that would decrease the use of hazardous material necessary and increase the amount of recyclable materials it can use instead.

Going further, normalizing all the data to unit sales will make it immune to changes in company size and market fluctuations. For example, Johnson Controls acquired Tyco in 2016. This leads
to a different company size being evaluated in 2015 and 2016. This hurdle can be eliminated by evaluating Johnson Controls’ performance per unit dollar of sales.
References


Appendix A

List of the United Nations Sustainable Development Goals:

1. End all forms of poverty everywhere.
2. End hunger, improve nutrition, promote sustainable agriculture, and attain food security.
3. Ensure healthy lives and promote well-being for all.
4. Ensure quality education and promote lifelong learning for all.
5. Achieve gender equality.
6. Ensure sustainable management of water and sanitation for all.
7. Ensure access to sustainable, affordable, reliable and modern energy for all.
8. Promote sustainable economic growth.
9. Ensure resilient infrastructure, as well as promote sustainable industrialization.
10. Reduce inequality among countries.
11. Ensure safe, resilient, and sustainable cities and human settlements.
12. Promote sustainable consumption and production patterns.
13. Combat climate change and its impact through urgent action.
14. Conserve the use of water resources for sustainable development.
15. Promote the management of terrestrial ecosystems and forests to combat desertification, land degradation, and biodiversity loss.
16. Promote inclusive societies and institutions for providing justice for all.
17. Strengthen the global partnership for sustainable development.
Appendix B

Tertiary goals:

SDGs 1 and 2 were developed to combat poverty and hunger respectively. Johnson Controls’ business does not affect these and there is no mention of any efforts to address these SDGs.

SDG 4 was created to ensure a quality education for all. Targets for this goal include the number of children and adults that have access to an education and can achieve literacy. Although Johnson Controls has not directly worked towards this goal, the company has created a foundation that has funded more than $50 million to support charitable organizations in the arts, education, environment, and health and social services in the last six years. The Johnson Controls Foundation also has an Education and Arts Matching Gift Program in which employee’s contributions are matched dollar-for-dollar to qualifying institutions. Through volunteer work, a group of employees tutored students in Shangri-La, Tibet for several years. They taught the students leadership development and environmental awareness, while also supporting the students financially so that they could continue their educations.

SDG 5 was developed to achieve gender equality. Targets for this goal include eliminating all forms of discrimination and ensuring equal opportunities for women. Johnson Controls requires the management of each facility to implement equal opportunity and no harassment policies in accordance with the law at all levels. A qualitative assessment cannot be made since new hire information and equal pay data is not available in the GRI.

SDG 10 was created to reduce inequalities within and among countries. This goal broadly covers social, political and economic inequalities. Some examples include equal employment opportunities regardless of sex, race, and age, ensuring enhanced representation of developing countries in global international economic and financial institutions, and adopting social protection policies. Johnson Controls is committed to local sourcing of people and raw materials, as well as local manufacturing wherever it is economically possible. Management in all facilities has implemented equal opportunity and no harassment policies in accordance with international standards, and with the company Ethics Policy.

SDG 11 ensures the sustainable development of cities and human settlements. This entails making cities and human settlements inclusive, safe, resilient and sustainable. The Building Efficiency and Tyco business units of JCI contribute to this goal. Building Efficiency is focused on the design, production, marketing and installation of various products, which includes security equipment. Furthermore, they also provide energy management consultation. Tyco is dedicated to designing, selling, and installing products and services for security, fire detection and suppression, and life and safety.

SDGs 14 and 15 were developed to protect life below water and life on land respectively. Johnson Controls has partnerships with local and regional non-profit organizations to support a variety of philanthropic programs. These programs support projects that range from environmental education to conservation work in parks and natural areas.
SDG 16 promotes peaceful, inclusive societies for sustainable development, justice provided to all people, and effective, accountable and inclusive institutions at all levels. Ensuring public access to information, protecting fundamental freedoms, holding institutions accountable and transparent encompass the ideals of the target goals. Johnson Controls has annual reports of company operations, which discloses all information on emissions, financials, and compliance of international policies. Transparency of JCI is an essential aspect of company policy, which emphasizes their dedication to informing the public and stakeholders.