4. Spectro

"What was particularly illuminating for me was that by collecting more data about cleaning we also as company may get new responsibilities which may led to new moral dilemmas. This has led us to adapt new policies for what data we share with our clients"

Laurens Metternich
CEO Spectro

About the company

Spectro is a Dutch manufacturer of cleaning agents for professional use. It a family-owned company with about fifty employees. The company has existed since 1986 and is located in Oss, in the South of the Netherlands. The company has a small R&D department with currently 4 people, mainly with expertise in chemistry. The company won the Family Fundament Award for the Best Dutch Family Business in 2014.

The company has an active Corporate Social Responsibility (CSR) policy, with a focus in particular on sustainability. The mission of the company is 'to decrease the total environmental impact of its products as well as decrease the cost of cleaning', and the company has the ambition to become a European player in the area of sustainable cleaning agents. The strategy of the company is aimed at developing high-quality innovative cleaning solutions that increase sustainability and lower the costs of cleaning.

The company and the technology

The company develops highly concentrated ecological cleaning agents that are combined with smart dosing systems. A main example is the brand Ecodos that has been developed since 2007. The Ecodos system takes care of the exact dosage of cleaning agents, so that overdosing becomes impossible. The rationale behind this is that life cycle analyses show that a large part of the environmental impact of cleaning detergents is in the use phase. Reducing detergent use, thus, has a positive environmental impact. Moreover, it reduces costs of cleaning. The Ecodos Easy system also has a small solar panel so that it can function independently from the electricity grid. The system stores data about its use.

A main technological development for Spectro is the Internet of Things (IoT). This will allow making cleaning devices connected and the collection and exchange of data. Some larger multinational companies are already developing and advertising new cleaning applications that use IoT. Spectro is embarking on this development and is developing a number of applications using IoT. Such applications will allow better maintenance and servicing (e.g. refilling in time). They also allow the collection of data about cleaning which can contribute to better or more efficient cleaning.

Working with Spectro

In close cooperation with Spectro, a number of responsible innovation activities were undertaken (see box 1).

Box 1: RRI activities

- Literature study about hygiene issues in hospitals and the potential for better cleaning solutions
- An inventory of the main stakeholders and values
- The development of a number of value scenarios
- Identification of value conflicts and potential ways to deal with them
- Help Spectro develop a RRI strategy

One of the potential markets that was explored for new clever dosing systems using IoT is that of cleaning in hospitals. This market is interesting for Spectro because the company is still a smaller player in that market but would like to expand. It was found – through a literature study – that healthcare-associated infections (HAI) are a main concern in hospitals. It is estimated that in the EU 4 million people acquire an HAI annually, and approximately 37,000 premature deaths occur due to HAI. In an additional 110,000 cases, HAI contributed to the death of patients according to estimates. This is said to result in 16.4 million extra days of hospitalization in the EU, and an estimated cost of €5.5 billion annually in the EU. It is further estimated that 20 to 30% of these infections could have been prevented.

Three routes are important for preventing HAI; 1) patient-to-patient contamination, 2) contaminated hands of healthcare personnel, and 3) environmental contamination. Spectro could in particular contribute to reducing the third route. There is no agreement in the literature about the relative importance of this route and the best (technological) solutions for it. Nevertheless, there is clearly a potential for the type of smart cleaning solutions combined with IoT that Spectro aims to offer. It can be concluded then that there is an opportunity here for Spectro to develop new products that offer a clear added social value combined with a potentially interesting business case for the company.

However, a stakeholder mapping showed that there are a number of barriers to the introduction of such new technologies. It was found that a large number of stakeholders is involved, in particular in the case of hospital applications (see box 2). Getting these stakeholders aligned is a major challenge. One particular problem is that the departments (or external companies) doing the actual cleaning do not seem to conceive the current situation as problematic nor do they seem to see any potential for the use of IoT in cleaning.

Box 2: Main stakeholders for hospital applications

- Distributor of cleaning products
- Cleaning department hospital
- Cleaning personnel
- Healthcare personnel
- Patients (and relatives)
- Purchase unit of hospital
- Logistics department hospital
- Direction hospital
- Expert infection prevention of hospital
- Health Inspection
- Ministry of Health

Another more general obstacle is that cleaning contracts are often the result of tendering and that in such procedures the emphasis is often currently primarily on the costs of cleaning (rather than the resulting hygiene). A first step in overcoming such barriers might be to set up a pilot with one hospital; but even that might require efforts that extend the capabilities of a small company and could probably be better initiated at the branch level.

It was further found that responsibly developing such new cleaning technology requires attention to a range of values in addition to the values of sustainability, quality and innovativeness that are already central in Spectro operations. These values are: public hygiene, privacy, security, transparency (of data collection), autonomy (of cleaning personnel), and reliability and trust. These values were further explored by developing a number of value scenarios. These are short hypothetical stories about (unexpected) use that help to reveal relevant values and potential value conflicts.

Advice

The company's CEO has indicated that participation in the PRISMA project was particularly useful for him because it made him think about issues he would not normally think of. He was particularly persuaded by one of the value scenarios and concluded that he should avoid the ethical dilemma of either withholding certain information or betraying the trust of a customer.

Spectro now aims at more actively sharing data with its customers so that they can take responsibility for the frequency and quality of cleaning. The CEO also found out that many of his customers are not aware of the data being collected and of the potential value of this data. He now sees it as the company's responsibility to make its customers more aware.

Increased collection and sharing of data may also potentially raise privacy issues. The data that are currently collected are most likely not personal data in the sense of the GDPR (General Data Protection Regulation) of the EU because they cannot be traced back to individuals. Nevertheless, it would be wise for Spectro to develop a policy about privacy collection and sharing that explicitly addresses privacy issues, in particular because future technological innovations may involve the collection of data that can be traced to persons.

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