CONNECTED COFFEE MACHINES

DIGITAL TRANSFORMATION WITH IOT IN THE INTERNATIONAL COFFEE INDUSTRY

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nextcontinent

Nextcontinent's citizens **Eurogroup Consulting** (Portugal), **Point B** (United States) and **Magnus Red** (Netherlands) all have a fair share of experience in their 'local' coffee industries. Even more so, consultants of each company are working at the front end of digital innovation with their coffee clients. Time to hear about the projects, experiences and visions on digital transformation in the international coffee industry from our own experts.

Let's start by introducing two terms that will be the subject matter of our expert interviews:

Internet of Things

Shortened to IoT and buzzword for the last couple of years: "The Internet of Things (IoT) is the network of physical objects that contain embedded technology to communicate and sense or interact with their internal states or the external environment." (Gartner, 2020)

Connected coffee machines

This refers to the usage of IoT for coffee machines. IoT in this context means supplying the coffee machines with sensors and connections that provide meaningful insights on the machines' activities.

Joining us to discuss the implementation of IoT in the B2B coffee industry are Nextcontinent's coffee experts:

Helena Araújo – Senior Manager at Eurogroup Consulting Portugal

Helena is responsible for the Operational Excellence Practice. Prior to joining Eurogroup early 2018, Helena has held management positions at various service and consumer goods companies.

Chase Kenia – Senior Consultant at Point B

Chase joined Point B in summer 2019 and shortly thereafter started leading several 'Internet of Things' focused projects at a global coffee company with cafés.

Wesley Geurts – Director at Magnus Red

Wesley started his career at Magnus Red and over the last couple of years has been part of the digital transformation at an international coffee producer.

Now, let's have a coffee break to discuss the projects, advantages and potential drawbacks of connected coffee machines!

Eurogroup Consulting Portugal
Helena Araújo

The Portuguese ground coffee market is dominated by two large companies, each with a market share of around 40%. The rest of the market is filled with some 100 other brands with more local and regional practices. Eurogroup Consulting Portugal (EgC) built up expertise of the Portuguese coffee industry through working with both major coffee companies. Over the last four years EgC has been part of an innovation program with one of the two larger coffee companies: Delta Cafés.

Innovation program

The innovation program is set out to challenge Delta and its business partners to identify out of the box opportunities in the business which are focused on product innovation, service experience or process excellence. The program's ideation process, in which EgC is involved, stems from periodical innovation sessions. Organized around a specific theme, external parties are invited to participate in challenging open discussions. This allows for an environment that boosts innovative ideas. Ideas marked as valuable will be followed up by studies, prototyping and market launch. The innovation program has been recognized by media platform Innovation Leader with its 'Innovation Leaders Impact Award' in 2019, which is presented to 'companies that are leveraging innovation, technology and R&D initiatives to achieve concrete business results'.

"The focus on innovation remains a priority in building the future of the Nabeiro Group. In today's paradigm it is challenging to create trends. I believe that what differentiates brands are the ideas and diversity of the offer, and above all their ability to develop and bring them to the market. It is in this sense that we work every day with the aim of adding value to the moments of consumption and sharing provided by coffee" – Rui Miguel Nabeiro, Board Member at the Nabeiro Group.
In Delta Innovation event.

Connected vending equipment

Other innovations are also explored in the Portuguese Out of Home market. Recognizing that 'data is the new oil' and the power of connectivity, a coffee producer partnered with a software company to launch a connected business model for its professional clients. Through bilateral communication between cash register equipment and the cloud, all sorts of information are collected and processed. The information is forwarded to coffee company's customer service to allow for a proactive approach concerning stock management, marketing campaigns or the development of solutions for points of sale.

Customer orientation

The connected equipment supports preventive maintenance and remote diagnosis to enhance a swift and accurate response. Moreover, it enables clients to request contact from technical and commercial teams through their machine's touch screen. The machine is complemented by an application that further benefits points of sales with a consumption view and remote configuration of machine parameters, among others. Implementation of this machine allows the coffee producer greater orientation towards the customer's business to deliver better service to its clients.

Helena's future vision on coffee IoT solutions

According to Helena, IoT solutions in the coffee industry are very useful because logistics will improve, service will be excellent and contacts between the producer and points of sale will be more valuable. It can change the role from being a salesman, to additionally being a sales consultant embracing a more advisory way of communication. This personalized advice, based on insights enabled by IoT connections, will in turn enhance customer experience. However, clients in charge of a shop do not always want an external party to manage their information and become more knowledgeable than the shop owners themselves. This can cause setbacks on the implementation of these kind of solutions.

Point B
Chase Kania

Point B is involved in supporting strategic planning and implementation of IoT-focused initiatives at a global coffee company with boutique stores. For a large multinational, with a portfolio of over 30.000 stores, any cost saving or benefit from IoT innovations has a potentially significant impact due to the company's footprint. The focus within the organization's IoT program has been on the operational side, rather than a customer-facing side.

Business cases of IoT in the global coffee industry

A large part of the business case centers around facilitation and support for machines in the stores and store employees. This means either reducing machine maintenance costs or making store employees' lives easier via IoT. The company is aware that there are people behind any captured efficiency percentages. Therefore, it is emphasized that the store provision of IoT-enabled new equipment could lead to learning and training opportunities, rather than being used as a reprimand to check up on store employees' activities.

Other industries' IoT initiatives

Beyond the coffee landscape similar efforts are made, for instance at retailers regarding predictive maintenance. Whether it's a coffee machine, a freezer or a refrigerator; if performance can be tracked with IoT sensors or capabilities embedded in the machine, companies can start to understand when the machine is not performing well. This will directly impact the cost of the machine itself or what is stored within that fridge, by giving real-time opportunities to prevent products from spoiling.

"IoT brings together an operational element, technical element and data science. I am eating, sleeping and breathing IoT now out there. It's more of a lifestyle than anything." – Chase Kania

Organizational challenges

Chase also points out that there are some organizational challenges when it comes to boosting IoT initiatives. First, if an organization wants to truly commit to and capture value from IoT, then IoT must be part of the entire development lifecycle of a project, program or any sort of IoT initiative. Merely integrating IoT elements in an implementation phase without proper preparation, structures and strategy in place might even diminish expected results. The second challenge is understanding organizationally how captured data products are managed, owned, maintained, expanded and augmented. This is an organizational challenge unlike the ones organizations are used to dealing with, just because of the broad and cross-functional nature of IoT.

Predictive maintenance challenges

Moreover, predictive maintenance models come with some risks depending on the actual quality of the model. When a predictive model is wrong or perhaps too sensitive, it could be doing the exact opposite of what it was set out to do, by requesting unnecessary service visits. Besides, predictive maintenance can open a can of worms; it can reveal issues that were not at the surface before. That is probably a good thing, but could get expensive or extensive to maintain. Another risk with implementing IoT concerns data security and privacy issues, but that is a challenge regardless of IoT and something that needs to be managed very carefully.

Chase's future vision on coffee IoT solutions

Nevertheless, Chase also sees opportunities when sharing his vision on connected coffee machines in a business environment. Because, counterintuitive to what IoT is doing, data analysis often is still quite siloed among organizations. In addition, there could be legal hurdles to share data extracts with external partners. Therefore, robust and cross-organizational integrations are a major opportunity. Greater cooperation among businesses to actually bring datasets together could continue to enhance the value of those data.

Magnus Red
Wesley Geurts

Magnus Red has gained experience with connected coffee machines at an international coffee producer. Within this coffee company the focus for connected machines has been on their professional services portfolio: coffee and coffee machines that are supplied to organizations. By utilizing connected machines, customer organizations no longer have to think about maintenance and replenishment themselves. For bigger tenders, concerning organizations with multiple locations and departments, connected machines have even become a knock-out criterion.

Boosting coffee consumption

Thus, similar to Point B's client, the first business case here is also about predictive maintenance. This has multiple benefits: service mechanic visits will become less expensive as they are planned instead of ad-hoc. Moreover, the machine will not become idle, which would have caused the coffee consumption to come to a temporary hold. The second business case has to do with the consumption model. As a coffee machine can only offer a limited range of drinks, utilizing consumption pattern analytics helps to determine which drinks are most popular and should be on the machine's offer.

Volume agreements; coffee contract

The third business case concerns the volume agreement that is part of a professional coffee contract. A volume agreement specifies what coffee volume a client will order over a specified time period. Organizations do not always meet their agreed-upon volume because orders are placed too late, or there is unawareness of the contract volumes still available. By capturing actuals, it becomes possible to support clients with triggers to reorder and maximize their contract volumes and latent demand.

Volume agreements; wholesalers

The next business case has similarities with the above-mentioned volume agreement, but concerns wholesalers. As wholesalers guarantee that their customers will consume a certain volume of coffee when buying a coffee machine, they are able to offer the machines at a certain price. However, as the data from connected machines revealed, this guaranteed volume is often not met. Therefore, wholesalers can now be addressed to either honor the volume agreement by coaching their customers or lose their purchasing discount. When cooperating with a significant number of third-party distributors, it proves valuable to be able to uphold them to business agreements.

Other industries' IoT opportunities

Optimization of volume agreement handling could lead to similar business cases at initiatives with regards to food and drinks in the hospitality industry. Taps in bars and cafés usually come with lease agreements based on a consumption volume agreement. Besides measuring consumption on supplied machines to manage commercial contracts, the advantage of predictive maintenance is also applicable when connecting the machines to capture relevant data.

Data collection challenges

However, similarly to Chase, Wesley also sees a challenge in the quality of predictive maintenance models. A machine's pattern of coffee recipes changes overtime due to deterioration, which can lead to a mismatch with the master data in coffee producer's ERP-system. This can cause incorrect stock levels or faulty order notifications. Furthermore, the attrition of long-term machine contracts leads to an existing base of non-connected machines financed by the coffee company itself. These machines are not yet amortized and therefore unattractive to replace by connected machines immediately, leaving potentially valuable data untouched. An opportunity lies in making the solution more flexible by retrofitting a machine connection with dongles.

Coffee producers vs. machine manufacturers

Wesley also points out that for a coffee producer with aspirations for connected coffee machines, it is important to consider the ambitions and stakes of the coffee machine manufacturers in this IoT playing field. This creates opportunities for cooperation on new IoT initiatives. However, it also comes with the risk of a potential lock-in, as machine manufacturers have their own IoT agenda which might differ slightly. Thus, it is a challenge to unite these interests. Having an independent proposition gives coffee producers more leverage towards machine manufacturers in joint IoT solutions.

Wesley's future vision on coffee IoT solutions

Wesley's vision for future developments in connected coffee propositions entails the available machine sensorsuite and commercial opportunities. As sensor pods will become more extensive, more opportunities become available to enhance the taste experience with regards to for example temperature, dosage and acidity. Commercially it would be interesting to not only automatically replenish, but potentially have an accompanying offer of an alternative coffee beverage based on weather forecasts, such as iced coffee.

B2C potential

So far, we have mainly discussed B2B IoT solutions and initiatives. But what do our coffee experts envision for the B2C coffee market when it comes to IoT?

Helena: “With regards to having a connected coffee machine at home, a connected machine has been implemented by coffee producers in our market. However, we are not there yet. Customers usually would not register the machine, which prevented direct communication from the machine to the coffee producer. This indicates the lack of demand or opportunities for such a product up until now.”

Chase: “Thinking about digital capabilities, I have linked my espresso machine at home to an app to make an espresso with a click on a mobile device. However, a cup needs to be placed beforehand, otherwise you end up with espresso everywhere… It’s definitely an opportunity. It would be important the make the user interface streamlined and very user-friendly, because in a non-corporate or industrial setting people need it to be easy.”

Wesley: “Businesses welcome any type of automatization which either saves costs or enhances qualities. Consumer demand and acceptance however is a whole different story. They respond very differently as consumers do not experience enough added value by IoT supported products to overcome their privacy sentiments. This sentiment grows with media covered incidents of data breaches and unintended recordings. But, as implementing IoT solutions seems to become more affordable, it might come towards a turning point. However, currently the scale is out of balance and companies seem to wait with IoT consumer initiatives for now.”

Conclusion

Looking at Nextcontinent's coffee clients and projects, we can conclude that internationally there is a drive towards IoT initiatives. Currently this is focused on the B2B market, where organizations are applying IoT for predictive maintenance purposes to reduce the maintenance costs of their coffee machines. Challenges here concern the quality of the predictive models and processing the results, be it by mapping to master data or the sheer volume of issues it potentially reveals.

Focus of B2B coffee IoT solutions

However, as operations of a coffee company with its own boutiques differ from coffee companies that serve the professional market or points of sale, so do the other IoT applications in their respective markets. While the first centers its IoT efforts around store employees and machines, the second focuses on professional customers and machines. The latter on the other hand caters its IoT solutions to points of sale. Yet in a way all initiatives are similar, as they are aimed to provide the customer with the best possible experience of their coffee. Opportunities here concern uniting interests and business integrations with external parties to reap most benefits from joint IoT solutions.

IoT outside the B2B coffee industry

Outside the coffee field comparable IoT business cases can be made for retailers and the hospitality industry. Predictive maintenance and real time monitoring of fresh products can be applied to refrigerators and other machinery, while volume agreement tracking can be employed for bar and beverage equipment contracts. Within the coffee industry it seems IoT applications yield more potential improvements for businesses than individuals, where privacy concerns play a larger role for consumers. Perhaps the declining costs of IoT sensors will eventually shift future innovations towards the B2C market, but for now it seems that the next steps will remain in the B2B area.

Nextcontinent's future vision on coffee IoT solutions

Having heard the experiences and visions of our enthusiastic experts, we expect IoT to gain ground and become ever more present in supporting operations of large coffee companies. In a world that is increasingly connected, equipping machines with sensors and allowing them to automatically communicate offers major benefits regarding predictive maintenance, stock management and product placement to name a few. As IoT implementations continuously grow more complex and sophisticated, we look forward to upcoming developments within the application of IoT.

Curious about your organization's chances, opportunities and IoT potential? Reach out to Nextcontinent or one of its Citizens to talk about your possibilities.

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