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RXPRISM'S REPBOTS: TRANSFORMING PHARMACEUTICAL COMMUNICATION THROUGH ARTIFICIAL INTELLIGENCE

DECEMBER 2017, BENGALURU, RXPRISM'S OFFICE

The RxLab team was holding its quarterly review meeting in December 2017. The product under the spotlight was REPBOTs, the "Less-Rep to Rep-Less Selling Solution", which was being prototyped and tested with three different pharmaceutical companies in India. The RxLab team was trying to identify impediments to the adoption and scale-up of the solution so that they could figure out the way forward.

The sales team had shared that about 80% of the health care professionals (HCPs) tested with had felt that REPBOTs was a novel approach. The on-demand aspect of the product was very useful. In the Indian context, many HCPs felt that the bots were more intelligent than the medical representatives (often referred to as 'reps') in terms of their subject knowledge, their ability to resolve problems instantly, and their competence at providing requested articles, files, or references to the HCPs.

The RxLab team reviewed a lengthy testimonial that highlighted what HCPs liked about REPBOTs.

Prof. Indranil Bose of the Indian Institute of Management Calcutta and Deepa Iyer developed this case study as the basis for class discussion rather than to illustrate the effective or ineffective running of an organization.

This case study is meant for use in the LDP titled "Senior Management Program" taught by Prof. Indranil Bose of IIM Calcutta starting 13th September, 2020. Beyond limited printing rights, copying, distributing or posting of this case study in any form on any media is strictly prohibited. The limited right to use this case is only valid for the duration of the program.

As a HCP, I liked this bot concept, especially because of the following reasons:

On-demand: *I have the flexibility to meet the bot at a time and place that is convenient for me. It does not affect my clinic time or bother me when I am with my patients. With a ChatBot in place, I truly do not miss a rep! The option ensures all my queries areanswered to my satisfaction, with appropriate references and documents instantly.*

Byte-sized content: *Short content truly upholds the sanctity of my meetings because my time spent with a bot is not more than two minutes at a time, which is an extraordinary improvement when compared to the time that I spend with my reps despite arriving nowhere.*

Personalization: *The content is especially personalized to my needs over time. As I meet with the bots more and more, the content that the bots share gets refined, relevant, and targeted to my requirement. This, I later realized, is because the bots learn over time, which really makes me feel I am already in the AI era!*

Seeing no cause for concern, they then moved to a discussion around the revenue model and the benefits that the solution could give to the pharmaceutical companies, their customers.

Muralidhar Raju, Head of Sales, RxPrism, shared that they had projected benefits of a possible 90% reduction in promotional fees for brands willing to test and deploy REPBOTs over a full annual marketing cycle. If the brand typically spent US$ 10 for every touch point via a human rep, they could do it at US$ 1 per touch point using REPBOTs. The solution gave them access to the predictive intelligence of the REPBOTs platform, which would help them plan ahead instead of react to what happened in the past. REPBOTs also offered campaign management facilities, and companies could also benefit from the content creation facilities of RxPrism as a separate service. However, Raju noted that while the C-suite audiences were excited with this figure, they seemed tentative in terms of committing to a large-scale deployment, which would involve large numbers of their reps working alongside REPBOTs.

Arul Bala Kathiresan, Director of Healthcare Solutions at RxPrism, noted that the move to rep-less selling could be a slow process. He said:

> *"Complete rep-less selling would possibly be 4-5 years into the future. Pharmaceutical companies want to be doubly sure that REPBOTs takes care of all regulatory and legal aspects. Initially, human reps need to be involved as they need to collect HCP consent."*

Shahid Ahmad Shaikh, Director of HealthCare Communication at RxPrism, agreed that this would possibly be the case. He additionally pointed out that in all the trials they had conducted, HCP uptake was positive compared to earlier data gleaned using human reps. This

was especially the case for brands that were in a decline phase. Therefore, maybe, this could be one lever they could use to gain immediate traction.

Maruthi Viswanathan, Founder and CEO at RxPrism, glanced around the table. He asked:

> *"What do you think we can change or sharpen in the marketing, the solution, and the approach to get one enterprise to move from pilot and test to commitment? To get them to partner with RxPrism for a large-scale country-wide deployment?"*

INDUSTRY BACKGROUND – CRM IN PHARMACEUTICALS

A pharmaceutical company's customers were HCPs, patients, pharmacies, and hospitals. When a company developed a drug, it needed to reach out to as many of these customers as possible through the entire life cycle of the drug, from discovery to end-of-life, and keep them informed about the benefits of the drug (new learnings, efficacy, and cost). It wanted to remain top of mind and within the consideration set of as many customers as possible so that it could influence and increase prescription.

A drug did not have a typical life cycle; rather, it followed the distinctive life stages as shown in **Exhibit 1**. Innovator pharmaceutical companies created drugs, patented them for many years, and sold them at high prices in global markets. Given the disparity in purchasing power between global markets and emerging economies, many of these drugs were expensive for customers in developing nations. In developed countries, part of the cost was borne by the federal government insurance or personal insurance. In countries like India, this support mechanism to sustain high pricing was not available. As long as patents existed, other companies could not develop and market the drugs under different names and thereby lower prices. When patents expired, these companies could market the drugs at 15-20% of the original price. Innovators planned their drug distribution in different markets so as to extend the life and price of their drugs for as long as possible. They also sought to protect and extend patents on their drugs for as long as possible.

There had been a couple of Supreme Court cases in India during 2012-2018 where the innovator pharmaceutical companies that sought to extend or include minor modifications to their drug lost the hearing.[1] This was a setback for the innovators but an opening for other companies dealing with the same drugs in the country. When the patents expired, the market opened up and lower cost and communication effectiveness determined which firm succeeded in generating larger outreach and getting more patients.

During the middle and late phases of the life cycle of the drug, all pharmaceutical companies across markets adopted a multi-channel approach, keeping in mind the reach, cost

[1]Sharma, E. K. (December 18, 2014). Novartis-Cipla battle shakes up Indian pharma industry, retrieved from https://www.businesstoday.in/sectors/pharma/novartis-sues-cipla-indian-pharmaceutical-industry-onbrez/story/213643.html

effectiveness, and detailing effectiveness of the drug. Traditional selling practice established a relationship with a HCP through a single point of contact called the medical representative (rep). The rep was responsible for 'detailing' product information to the HCP. Over time, this evolved to a two-tier contact system as markets expanded. Companies tried to optimize effectiveness and cost with lower priced reps maintaining contact and answering simple queries and higher priced medical science liaisons (MSLs) communicating scientific and non-promotional messages and answering more detailed questions.

The trend in markets across the globe showed that HCPs were giving less time to reps, sales force numbers were decreasing, and value-added information was being sought by the HCPs from multiple sources (key opinion leaders, pharmaceutical companies) through multiple channels digital and otherwise.[2] Specific to pharmaceuticals, a report from McKinsey and Company suggested that the expectations of the HCPs for the quality of engagement continued to grow exponentially with 81% of HCPs remaining dissatisfied with their interactions.[3] This could be one of the reasons why HCPs were not giving time to the reps. There was a perceived need for personalized and relevant content delivered via appropriate communication channels to the HCPs. **Exhibit 2** provides more details.

The gap in effective medical communication could be addressed in part by global advances in data availability and advanced analytics capabilities that offered companies the opportunity to create personalized and effective experiences for the HCPs. However, while there was a strong potential for global disruption due to the advances in technology, the industry as a whole moved slowly towards adoption.

According to a survey by McKinsey, almost all pharmaceutical and medical technology companies worked on their digital strategy. Many kicked off pilots or prototype development projects. The assessment of the maturity of their digital strategies, however, revealed stagnation: goals and objectives of the digital strategy (the 'what') seemed to be in place, but there were challenges in defining a clear path toward operational implementation (the 'how').[4] The survey from McKinsey asked participants for the five building blocks of a digital business model, from digital strategy to culture. While the majority of the respondents (65%) had a strategy in place, the 'softer' components that were needed for higher 'digital maturity' were present at only a handful of the surveyed companies. Only 10% of the surveyed companies said that digital culture was not an issue for them. **Exhibit 3** provides details

[2]LaMotta, L. (September 18, 2017). 5 trends shaping the pharma sales force, retrieved from https://www.biopharmadive.com/news/spotlight-trends-pharma-sales-force-digital-marketing/504949/

[3]Everrs, M. (May, 2018). Medical affairs: Key imperatives for engaging and educating physicians in a digital world, retrieved from https://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/medical-affairs-key-imperatives-for-engaging-and-educating-physicians-in-a-digital-world/

[4]Biesdorf, S. (October, 2018). Barriers to Digital@Scale: Shifting the focus from tech to culture, retrieved from https://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/barriers-to-digital-at-scale-shifting-the-focus-from-tech-to-culture

related to this.

The challenge of digitization was perceived as no longer one of just technological capability, but one of governance, culture, and talent. This was a clear indication that companies needed to shift their focus from incubators and initiatives and start thinking about using a change management approach to scale their digital strategies. To enable this, digital strategy needed to become part of the vision and mission of a company. Only by making digital an integral part of the culture at all levels would it be possible to scale up prototypes to fully-fledged business models. To achieve this, firms needed to communicate not only as a priority for information technology and human resources, but also as a priority for all functions. The digital agenda needed to be driven from the top and by leaders in all functions, such as medical R&D, marketing, and operations.

In terms of governance, the digital strategy needed to address ethical issues and concerns about whether it was unbiased in its governing logic and helpful to the humans it meant to serve. With the help of nascent technologies, such as artificial intelligence (AI), computers could be taught specific tasks and then programmed to act much faster than a human could. Many times, these tools were used in tasks that could change the trajectories of human life, raising concerns about whether these technologies were being created and used responsibly. Fei Fei Li, Chief AI Scientist at Google Cloud and Director of the Stanford Artificial Intelligence Laboratory, commented[5]:

> *"As a scientist, I'm humbled by how nascent the science of AI is. It is the science of only 60 years. Compared to classic sciences that are making human life better every day — physics, chemistry, biology —there's a long, long way to go for AI to realize its potential to help people. With proper guidance, AI will make life better. But without it, the technology stands to widen the wealth divide even further, make tech even more exclusive, and reinforce biases we've spent generations trying to overcome."*

RXPRISM

In 2005, Viswanathan completed his MBBS. While a student of medical science, he was equally fascinated by new developments in software such as digital animation. During his tenure as a student, he studied digital animation independently and then used this knowledge to make a difference to his medical science case study presentations in India and international conferences. Through this activity, he developed a network of more than 150 medical professionals with whom he worked to develop medical papers. Many of these papers went on to garner international recognition. He found his calling by the time he had completed his studies. He wanted to try and bridge the gap between the complex rapidly evolving field of medical science and the galloping advances in digital technology so that the latter could be used to help explain and communicate the former to the targeted audience effectively.

[5]Hempel, J. (November 13, 2018). Fei-Fei-Li's quest to make AI better for humanity, retrieved from https://www.wired.com/story/fei-fei-li-artificial-intelligence-humanity/

Viswanathan reflected:

> *"My professors pointed out that I had clarity in and passion for the digital space while being a doctor. So I could bridge the gap between complex medical science and ever-growing technology! I started my journey by finding out that the tools that existed were not good enough for the health care industry. So, I developed some on my own."*

Viswanathan then moved to working for life science companies both in India and abroad. He gained exposure to best practices and research on the use of cutting edge technology that was taking place at global companies. While working for a multinational corporation, he worked on projects with about 17-18 companies spread across Europe, Middle East, Japan, USA, Singapore, Malaysia, India, and Germany and gained unique perspectives about the differences in legal elements, protocols, and regulations that were followed at these countries. Many variations existed in the regulatory practice of different companies. Regulation in France prohibited the tracking of reps on the field using GPS.[6] However, this was a common practice followed by some companies in India. At the same time, a pharmaceutical company had curbed this through the influence of their labor union. Viswanathan gained an understanding of the challenges companies faced while adopting digital and multi-channel approaches to rep-based selling. During this period of industry exposure, Viswanathan also devoted himself to acquiring formal degrees in the domains of technology and management. Viswanathan's exposure to the global industry had sparked many ideas, which he wished to prototype and bring to life. RxPrism was incorporated in 2013 using angel funding from friends and family.

In the span of four years (2013-2017), RxPrism saw multi-fold growth with about 50% increase in revenue year on year. While 30% of the company's revenue came from its new clients, 70% of the revenue was through repeat businesses from its existing clients. As an innovative company, RxPrism garnered many awards. These included *50 best companies to work for* (Silicon Review), *25 fastest growing 3-D technology companies in India* (The CEO Magazine), *20 most promising healthcare technology providers in India* (CIO Review), and *best digital healthcare marketing company of the year 2016* (CIO Review). In May 2017, London & Partners, the official promotional agency of the Mayor of London, declared RxPrism among the *20 most innovative and high growth companies with global aspirations in India* and offered RxPrism the opportunity to set up its business in London.

RxPrism was established with the focus of '*digitizing whatever life science companies are doing with healthcare providers'.* It offered strategy (thought leadership through automation, machine learning, predictive analytics, and marketing), software (a multi-channel CRM software named PRISM), and services (digitally enhanced rich media content and custom solutions) through various channels utilizing the power of augmented and virtual reality, AI, cloud computing, and Internet of Things.

[6]Global Positioning Systems.

RxLab was the R&D division of RxPrism. It was created to facilitate the confluence of customer understanding, medical knowledge, creative design, and technology understanding, to experiment with and create new products. RxLab focused on how 'traditional marketing methods could be digitized' by following a basic principle of 'innovation through collaboration'. This process involved listening closely to the customer to understand areas of challenges and building very small prototypes using the latest technologies that could address those challenges. These prototypes were taken back to the pharmaceutical company's customer (typically the HCP) and iteratively tested and refined with feedback at every step. **Exhibit 4** provides more details about how this was done at RxPrism. In essence, RxPrism's approach towards developing successful, long-term, digital engagement solutions was a 'spiral' that continuously evolved through ceaseless mining of behavioral data. Insights from the prototyping led to incremental changes in the engagement solution over time, achieving greater personalization of end-customer interactions and enhancing end-customer intimacy with the brand.

REPBOTS – THE FUTURE OF PHARMACEUTICAL COMMUNICATION

At any point of time, RxLab had many solutions that were work in progress. All of these were patented brainchildren of Viswanathan. He guided the team as they piloted the solutions and rolled them out in the market. REPBOTS was one among these solutions. Raju explained:

> *"All our products come out of RxLab. Very senior people from marketing, technology, medicine, and creative sit together looking at emerging technologies with the question, How can we use these technologies in the pharma context? Our products are innovative; the solutions they offer don't exist anywhere. We create and test them, do a minimum viable product, pilot, learn, and then roll them out in the market."*

Data showed that the number of HCPs that were considered accessible to reps was down to 44% in 2016, from as high as 80% in 2008.[7] Even those HCPs that gave access to reps were now spending less time with them. Most reps only had about three minutes with HCPs, down from six minutes in 2012.[8]

But reps still had their place, according to Konzelmann, Managing Director at ZS Associates, who said that digital has become a complimentary tool for many reps. Even though HCPs were spending less time with reps, that did not mean they weren't interested in the information the reps were peddling. In fact, many HCPs were just choosing to get the information differently, or in ways that were more accommodating for their very busy schedules. A report indicated that one in four sales force interactions had been replaced by digital, and HCPs were

[7]Khedkar, P. (2016). Want better access to physicians? Understand what's top of mind, retrieved from https://www.zs.com/-/media/pdfs/ph_mar_wp_afm_acm_2016_es_v4.pdf
[8]Morton, L. (March 18, 2015). The three-minute sales rep: Optimizing HCP access, retrieved from http://social.eyeforpharma.com/commercial/three-minute-sales-rep-optimizing-hcp-access

spending an average of 84 hours a year on reading digital marketing material.[9]

RxPrism's client engagement teams also found that sales channel effectiveness was a key concern of all its customers across markets. The question therefore was how RxPrism could work with emerging technologies to help pharmaceutical companies optimize communication with HCPs through the medical representative channel while reducing cost. The idea of creating the REPBOTs solution evolved as an answer to this question. There needed to be some way of supplementing the rep-based interaction with the HCPs in a manner that maintained the human touch while giving the HCPs what they required and when they required that. ChatBots, a rapidly evolving field of technology, seemed to provide the basis for doing this. In a recent report, Gartner had predicted "By 2020, the average person will have more conversations with bots than with their spouse. With the rise of AI and conversational user interfaces, we are increasingly likely to interact with a bot (and not know it) than ever before."[10] Using AI, it was also possible to analyze the behavior of groups of HCPs with their ChatBots and predict their needs and behavior to help optimize the selling process and manage campaigns. Both the communication and the computation aspects needed to dovetail into RxPrism's basic services of content creation and e-detailing to provide a complete package for the HCPs.

THE IT ARCHITECTURE OF THE REPBOTS SOLUTION

A REPBOT was an AI-enabled, Avatar-based virtual rep, which could be programmed to perform product detailing with the HCPs automatically, measure their behavioral change, and then customize the subsequent detailing.

Through the Campaign module, REPBOTs were configured to establish a behavioral change goal among a group of HCPs. The REPBOTs solution was an ecosystem of offerings woven together with the ability to customize parts and integrate into the technology ecosystem of a pharmaceutical company (customer of RxPrism). As the ability and maturity of various parts of the ecosystem improved with improvements and learnings in the fields of the associated technology, the technical challenges faced in implementing the solution reduced. RxPrism's REPBOTs ingeniously combined multiple elements into a platform that could be customized based on the customer's requirements as shown in **Exhibit 5.** Mihir Deshpande, a customer of RxPrism explained why the REPBOTs solution made sense:

> *"RxPrism is a very innovative company that understands the customer's problems. Their on-demand REPBOTs platform can be described by three important features that add*

[9]Crowley, J. (2015). The rebirth of the pharmaceutical sales force, retrieved from https://www.accenture.com/t20161128T001132Z_w_/usen/_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Dualpub_13/Accenture-Rebirth-Pharmaceutical-Salesforce.pdf

[10]Pemberton Levy, H. (October 18, 2016). Gartner predicts a virtual world of exponential change, retrieved from https://www.gartner.com/smarterwithgartner/gartner-predicts-a-virtual-world-of-exponential-change/

value to the customers and make them want to adopt it – convenient, contextual, and cost-effective."

The authoring module allowed the customer the facility of creating digital assets using an automated or semi-automated process flow. Digital assets were content blocks of byte-sized information; complete modules of information that could be scanned by a HCP in two to three minutes. These digital assets could take on the appearance of one of ten+ bot avatars, or video recordings of humans (content creators, reps, and key opinion leaders). They could also be documents, videos, polls, or surveys. The semi-automated process flow enabled the creation of these content blocks in less than three minutes per block. The content block was auto-compiled and saved as responsive content, hosted in RxPrism's streaming server, and linked to a website that was generated instantaneously. The content was saved as responsive content and it could be disseminated via multiple channels (email, SMS, WhatsApp, voice/ video conference) and could take on the appropriate shape for the device it was rendering on (phone, tablet, or computer). This addressed the basic challenge of getting the HCPs to open the content with minimum pushback on the technology. Shaikh commented:

"Not all HCPs are receptive to opening emails. They get such a vast number of pharmaceutical communication emails that these emails can get lost. Receptivity to other forms of communication like SMS is better because the premise of the customer is that SMS is transactional. WhatsApp is even better than SMS as it is typically sent from known sources. There have been a lot of challenges faced in the past over the adoption of app-based solutions by the HCPs. Our workaround for this is to make the solution totally web-enabled. There is no need for the HCP to download/ install/ login into anyapplication."

The authoring module then passed on the content blocks to the campaign builder module, which was powered by machine-learning algorithms. This module could push the content blocks out via multiple channels based on the campaign algorithm. The campaign algorithms could be of four main types:
(a) The basic campaign sent out single ad-hoc messages to individual users.
(b) The linear campaign sent out a string of sequential predetermined messages to individual users.
(c) The individually targeted campaign was setup with a goal to bring about a behavioral change and would walk a target through a customized set of content blocks based on response at each point. This behavior of the target would feed into the persona module of the platform, which would analyze the preferences, behavior, perceptions, and impact on the target. Further, it would feed into the customer behavior module, which recorded the behavior and stored it as a neural information flow for future reference and AI-based data analysis. This would be followed by a qualitative assessment of the effectiveness of the message based on the behavior of the target. **Exhibit 6** provides more details on it.
(d) The segmented and targeted campaign was an extension of the individually targeted campaign, which targeted segments of HCPs. It was linked to the CRM system of the customer and provided a quantitative evaluation of the behavioral change of the customer. The details are shown in **Exhibit 7**.

The REPBOTs solution could integrate into the CRM application of the customer and provide data in the form of reports for analysis. The tool, the data it amassed, and the analysis provided could help pharmaceutical companies move out of their long reaction cycle (once in three months) of evaluating the effectiveness of pharmaceutical communication to forward looking predictive thinking as well as customized messaging for individuals. For the HCP, the REPBOTs solution offered a world of convenience as shown in **Exhibit 8**.

The ChatBot that was built into REPBOTs helped the HCP in two-way communication. A ChatBot was an "online human-computer dialog system with natural language".[11] It was meant to provide three essential functions as explained by Sansonnet et al.[12]
(a) Dialogic agent: The ChatBot must understand the user, i.e., provide the function of comprehension. Bots were provided with a textual or oral input, which were analyzed with natural language processing tools in order to generate appropriate responses.
(b) Rational agent: The ChatBot must have access to an external base of knowledge and common sense (e.g., corpora of data) such that it could provide the function of competence in answering questions posed by the user questions. It should store context-specific information (e.g. user's name, etc.) to customize the delivery of answers.
(c) Embodied agent: The ChatBot should provide the function of presence, which was essential for any user. Even the earliest bots were given names (ELIZA, ALICE, CHARLIE, etc.) in order to satisfy this condition. Today, developers were focused on the use of language tricks to create personas for ChatBots in order to build trust with users and give the impression of an embodied agent.

Over the past 60 odd years, ChatBots had evolved from handling simple questions and linear dialogs and transactions to being able to make sense of intent and context and learn from each interaction. The various phases of ChatBot maturity are shown in **Exhibit 9**. The REPBOTs solution in 2018 could be pegged as moving from phase 2 to phase 3 of the ChatBot maturity cycle.

THE CHALLENGES

In the case of the REPBOTs solution, the function of the dialogic agent became difficult to deliver because of the use of medical terminology and the limitations of natural language processing. It led to the REPBOTs not always understanding what the HCP was trying to communicate. Kathiresan remarked:

"If we take India as an example, there are so many different dialects. Though everyone is

[11]Jia, J. (2003). The study of the application of a keywords-based ChatBot system on the teaching of foreign languages. ArXiv preprint cs/0310018. Retrieved from https://arxiv.org/abs/cs/0310018
[12]Sansonnet, J.-P., Leray, D., & Martin, J.-C. (2006). Architecture of a framework for generic assisting conversational agents. Intelligent Virtual Agents Lecture Notes in Computer Science, 145–156. Retrieved from http://doi.org/10.1007/11821830_12

going to talk in English, each one of them has a different style. Voice recognition has not evolved sufficiently in the medical domain. So, it still becomes necessary to reach out to remote teams or for the actual reps to answer questions. Once the bots learn through training and the technology evolves, it may be possible to move to a rep-less solution."

The other fundamental concern which was observed but not explicitly stated in the pilot projects run by RxPrism was that humans feared that the technology could be detrimentally used against those who it was meant to benefit or augment. Raju remarked:

"Customers are delighted to see the demo. The challenge is for them internally to get people on board and agree that this is something worthwhile. We pitch to the business owner, therapy leader, or the head of COE to take the solution forward. However, people wonder whether this will take away the rep's job and resistance creeps in. In some cases, especially in India, a few years ago, some companies used to have trade unions for reps. Change management is a challenge."

THE ROAD AHEAD

Viswanathan opined to the team that whatever the challenges in voice-recognition technology, they needed to travel along with the fast pace of the industry in adopting ChatBots. Maybe, RxPrism could get a jump on the competition by building various competencies. He asked whether they could develop a conversational interface that could recognize variances in pronunciation through repeated interaction.

Secondly, he wondered if the team could develop a threshold intelligence base for the bot to be deployed on field. For example, could it understand a HCP's standardized query and be able to search for content from an authorized journal.

At the bare minimum, Viswanathan urged the team to think of modifications to the current solution using technology or human workarounds to address the limitations of the technology. Could they connect HCPs directly to a remote team at the back-end to answer queries real-time? What could they change in their solution/approach to address the basic fears that AI would result in job losses or that AI would make major mistakes in its predictions?

The team was quiet as they mulled over the various options they could work through before suggesting the next steps to engage with a potential customer.

EXHIBITS

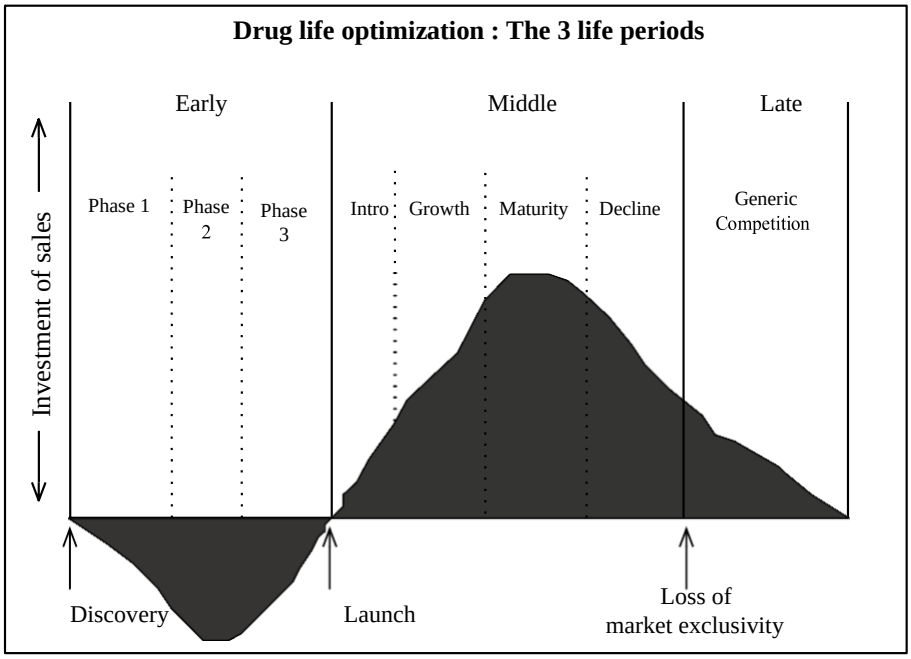

Exhibit 1: Adapted from the life periods of a pharmaceutical product.
Source: TTM Associates 2017.

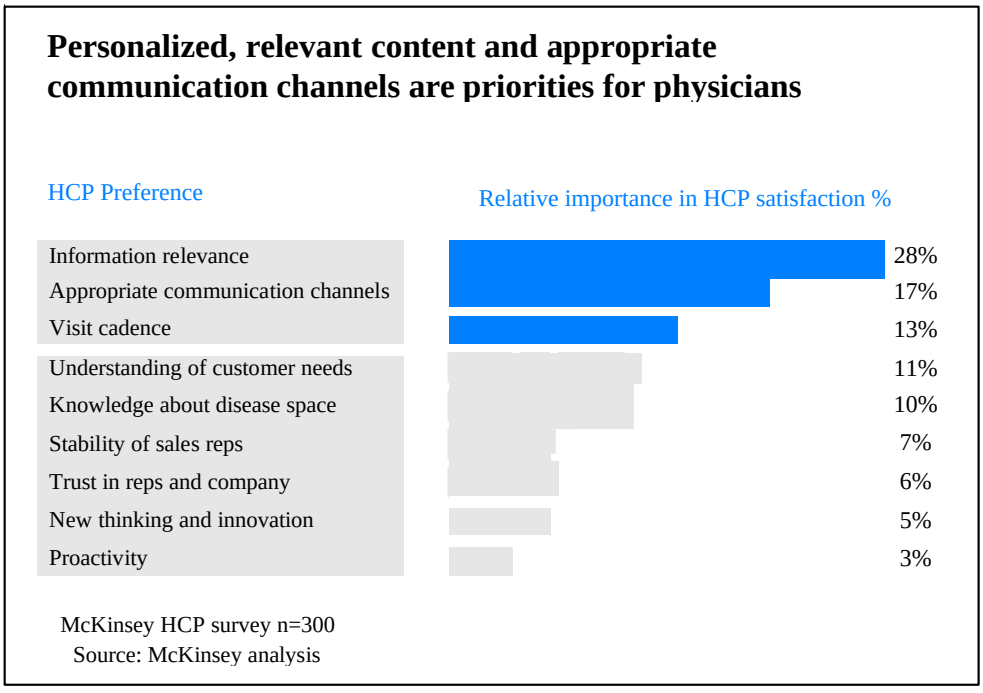

Exhibit 2: Preferences of the HCPs.
Adapted from the report what matters to HCPs by McKinsey and company, 2018.

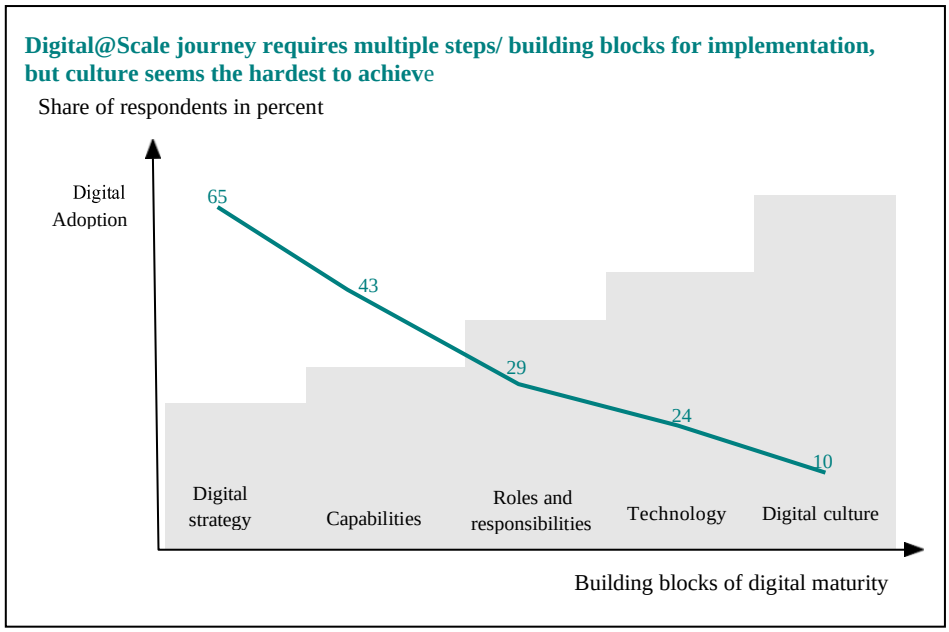

Exhibit 3: Factors that influence digital adoption by firms.
Adapted from the report building blocks for achieving digital@scale.
By McKinsey and Company, 2018.

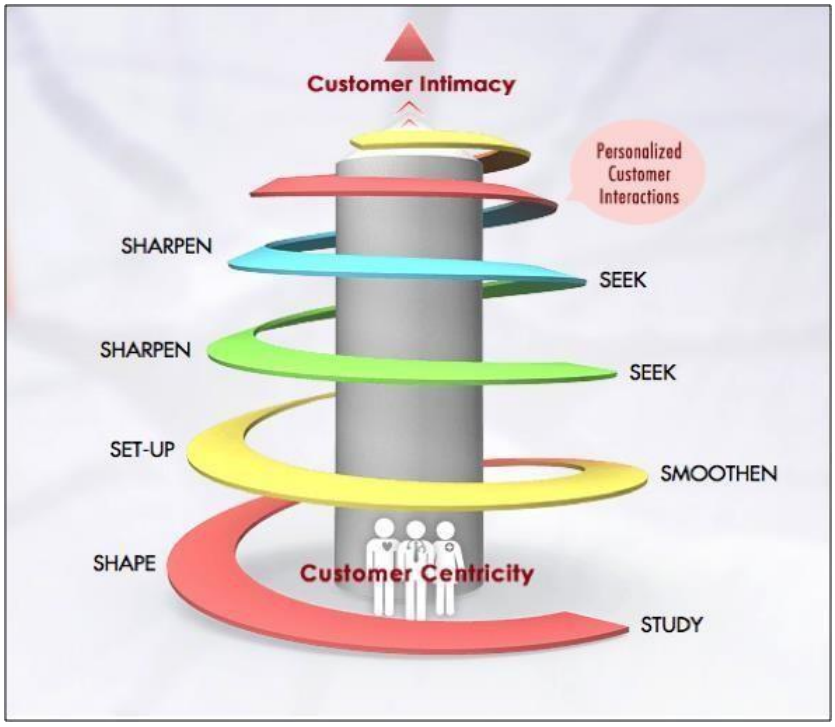

Exhibit 4: RxPrism's innovation through collaboration.
Source: RxPrism.

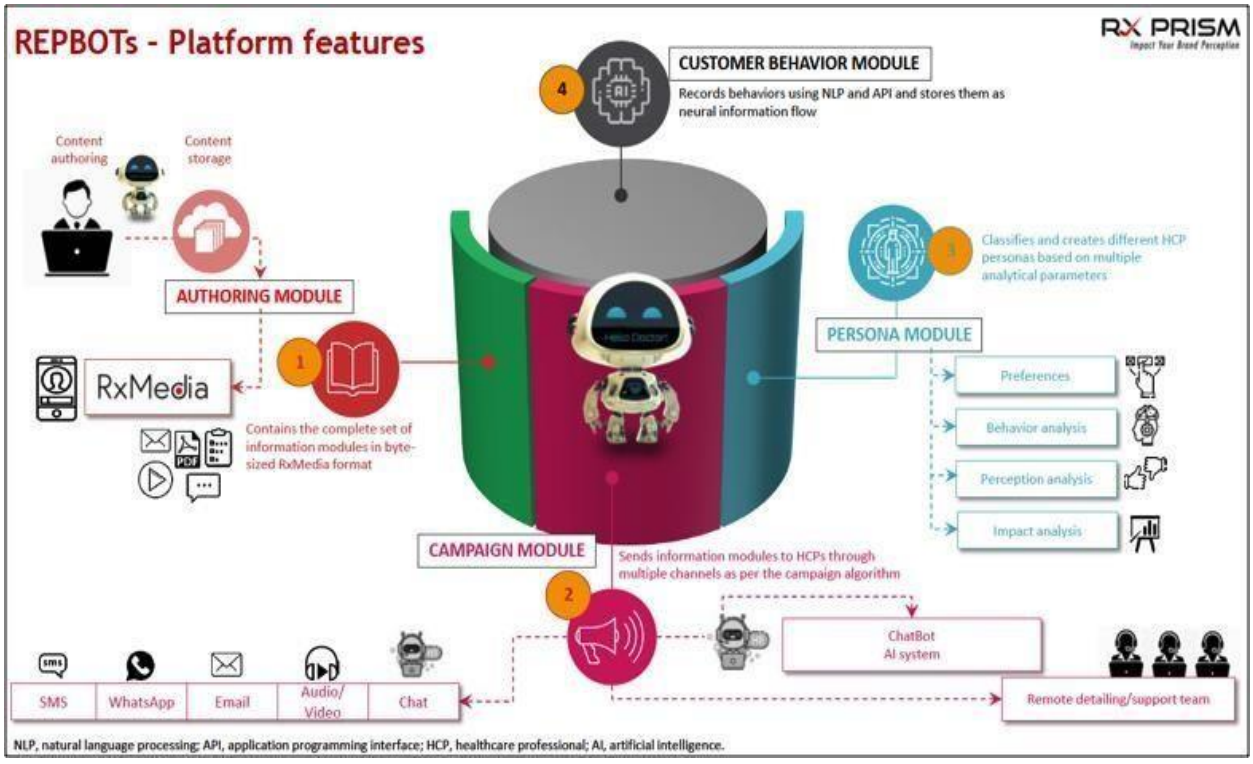

Exhibit 5: Features of the REPBOTs platform.
Source: RxPrism.

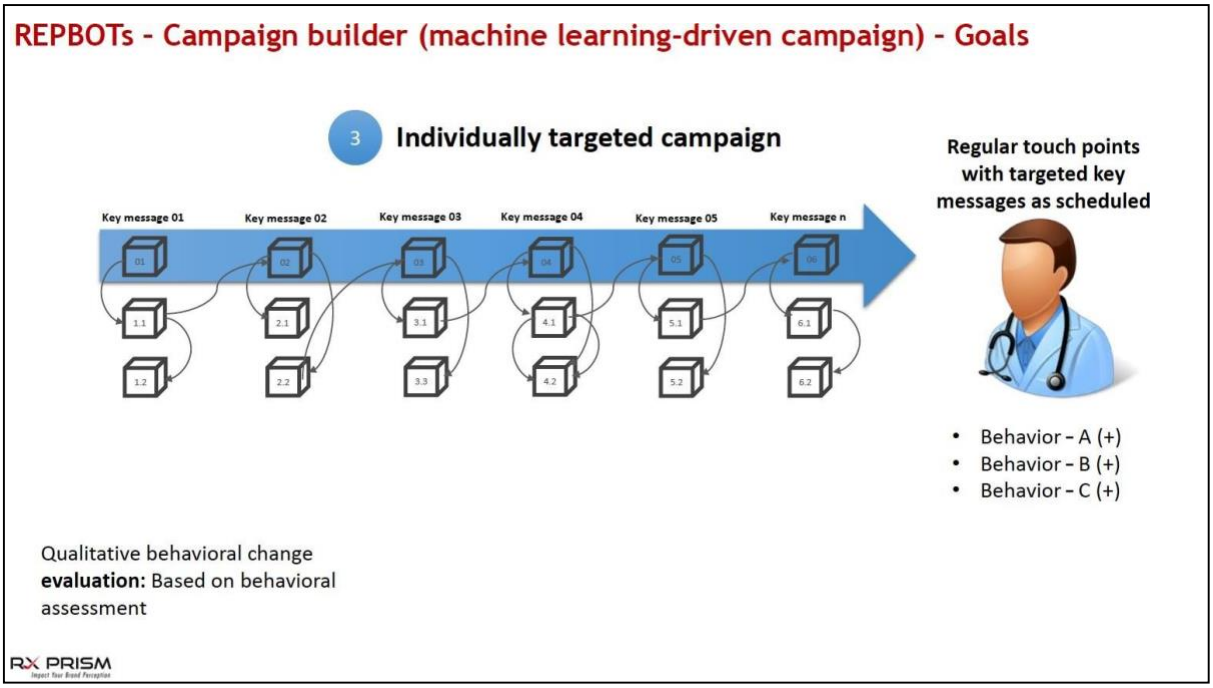

Exhibit 6: Use of the campaign builder for individually targeted campaigns.
Source: RxPrism.

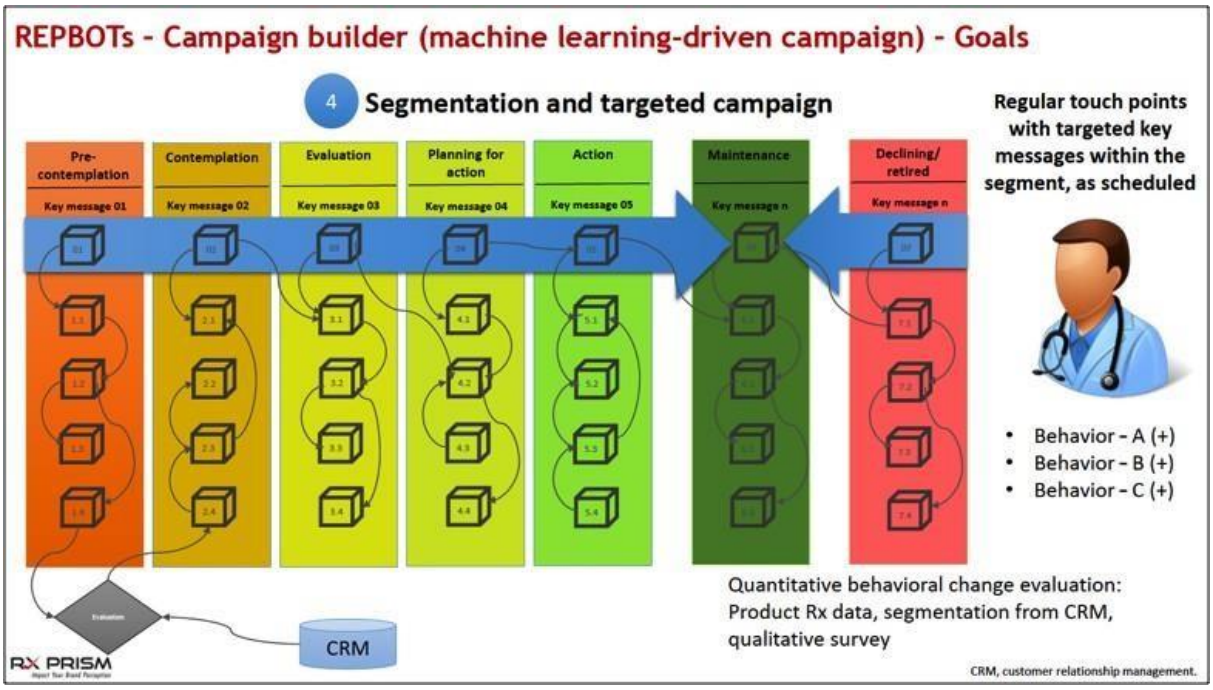

Exhibit 7: Segmentation and targeted campaign using the campaign builder.
Source: RxPrism.

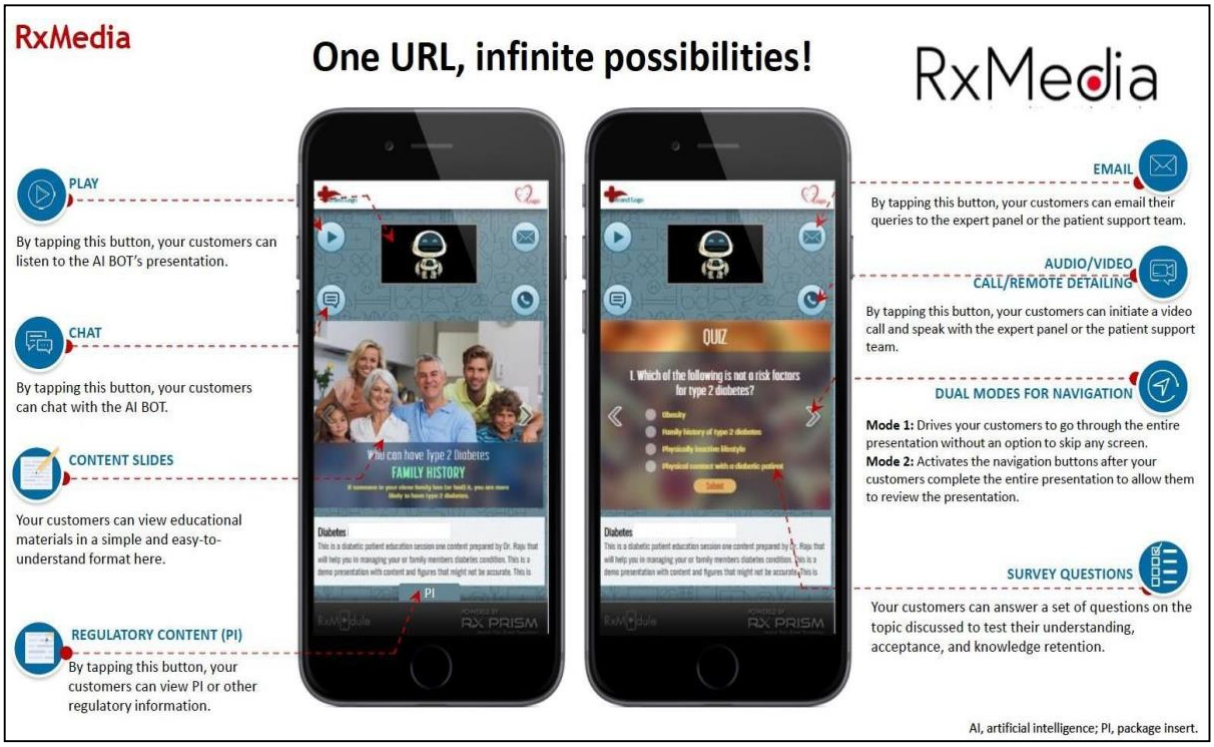

Exhibit 8: Features of REPBOTs.
Source: RxPrism.

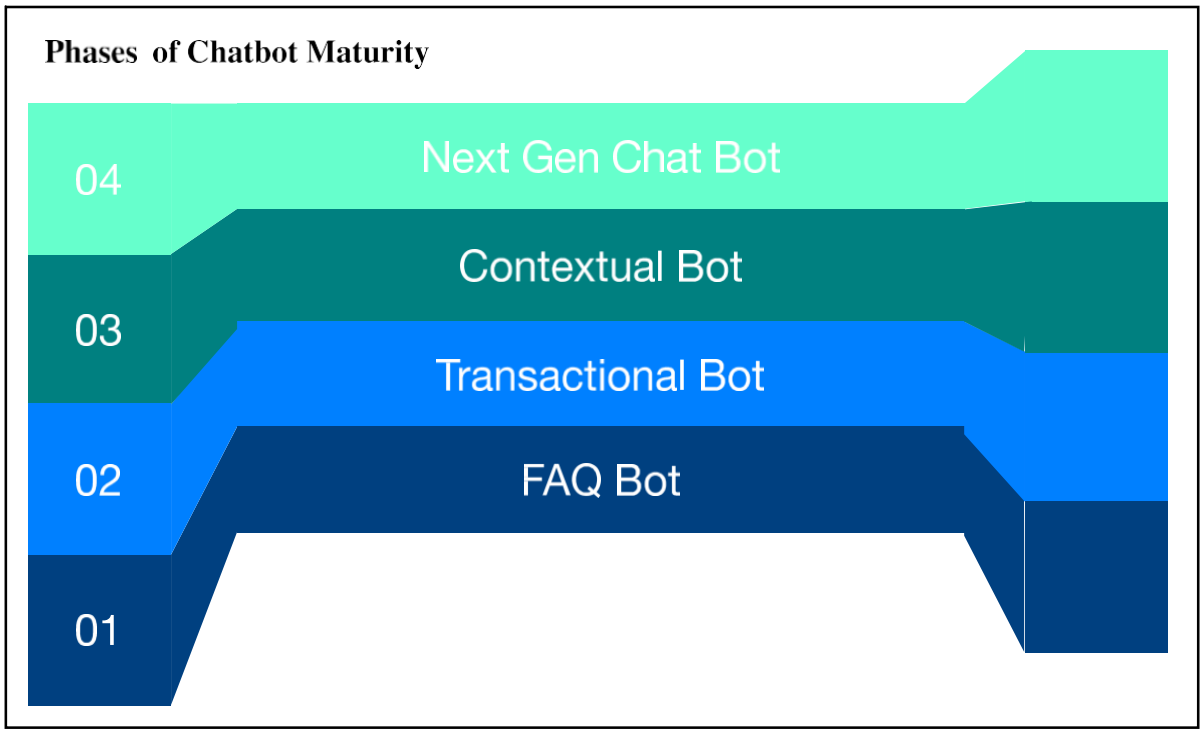

Exhibit 9: Phases of ChatBot maturity.
Adapted from Jacanda.com.