

# Innovations

Innovations are a core element of our long-term success and sustainability. Consumers in Russia, and globally, are changing as technology influences ever more aspects of our everyday lives. We see greater demand for convenient and time-saving services that enable customers to get what they need on the go. The largest shift in behaviour and business models is the growing availability of omnichannel retail, where consumers increasingly expect access to any goods and services, anywhere and anytime.

While technology is enabling many changes in consumer behaviour, it is also playing a major role behind the scenes in retail operations in a way that helps first-movers become more competitive by improving the quality of goods and services while lowering costs.

## Search and implementation of innovative technologies



	STAGE 1 SCOPING	STAGE 2 BUSINESS CASE	STAGE 3 PILOTS	STAGE 4 ROLLOUT
DECEMBER 2017	350 STARTUPS	130 STARTUPS	33 PILOTS	3 PROJECTS
ADDED IN 2018	<b>+209</b>	<b>+157</b>	<b>+35</b>	<b>+6</b>
DECEMBER 2018	559 STARTUPS	287 STARTUPS	68 PILOTS	9 PROJECTS

## Pilots across the X5 value chain



**X5** RETAIL GROUP

**68** PROJECTS

IN INNOVATIONS ARE CURRENTLY BEING PILOTED AT X5

### How we manage innovations

X5 has created and funded an internal process to search for, pilot and implement tech innovations. This process focuses on finding innovative technologies that will help us to enhance our customer experience, improve and automate business processes and drive greater efficiency.

### 2017-2018 highlights

By teaming up with some of Russia's largest funds and accelerators, in 2017-2018 we analysed technologies from over 500 startups; launched 68 pilots in our stores, DCs and Corporate Centre; and had nine tech innovations in rollout phase by the end of 2018 in areas like pricing, process automation, energy efficiency and personalisation.

### Plans for 2019

Our work on innovations will continue to focus on both our top line by helping increase sales and our bottom line by improving efficiency across the business.

In the year ahead, we aim to further expand and enhance our innovation search and implementation process by increasing the number of projects that we review, while improving the effectiveness of the integration process. Key areas of focus will be shelf availability, self-service points of sale, process automation, energy savings, etc. At the same time, we aim to launch a variety of omnichannel approaches in order to better understand customer preferences and to gain a better understanding of related business processes.

## Examples of the innovations we are currently testing



- Shelf video monitoring uses cameras located throughout the store to automatically notify personnel when shelves need replenishing. This technology has the potential to reduce in-store personnel costs while improving shelf availability for customers.



- Queue video monitoring enables us to track queue lengths and notify a store manager to open additional check-outs or close idle ones. Customers receive faster service, while the store manager can plan cashiers' schedule more flexibly.



- We installed smart sensors in stores that send information to a smart energy control centre that helps to optimise energy consumption in accordance with constantly changing store needs.



- We use virtual-reality (VR) tools to train our store assistants who serve customers over the counter in the meat, fish, and cheese categories. Shop assistants regularly use VR sessions where they go through typical conversations with virtual customers. The training system recognises the user's voice and matches his or her speech with the script. This training technology has helped us to raise customer service quality and cross-sales.

## Big data

Our Big Data Department was established in 2018 and is headed by Anton Mironenkov, who has been with X5 for more than 10 years. Anton was previously Director of Strategy at X5. The Big Data Department currently consists of over 100 professionals.

Big data helps us improve efficiency through the use of data in all areas of the business and for decision-making at all levels.

In 2018, X5's Big Data Department rolled out a technology platform for data collection, storage and processing. Its basic, underlying principles – fast scaling, support for multiple data processing technologies, a high level of security, low storage and computing costs – have made data available to the entire Company.

This has established an optimal production process for our current business goals. The Corporate Centre's Big Data Department is building analytical systems for the benefit of all our formats, as well as creating and developing a single data storage and processing centre for all our formats, where analysts from all of X5's formats and functions can do their analytical work.

### Get to know your customers by engaging with them

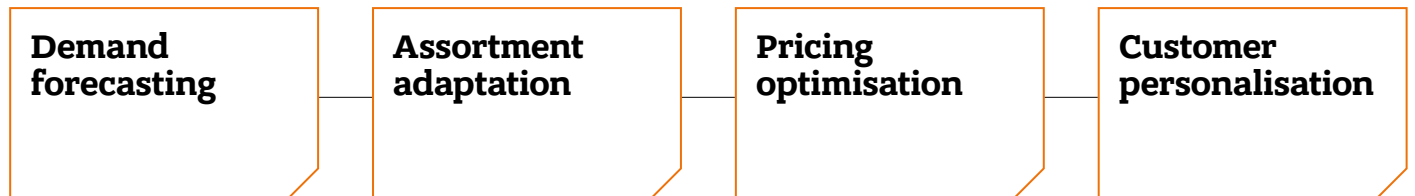
The transition from analysis of quantitative indicators, such as sales receipts and revenue, to understanding the qualitative characteristics of every customer – their socio-demographic characteristics, loyalty to our formats, consumption profile, consumer missions – has allowed us to switch to a customer-centric business management model and to put into practice various tools for customer interaction.

The Big Data Department has developed a library of more than 40 million unique customer profiles.

Ten segments are broken down according to socio-demographics, loyalty levels, lifestyles and missions to help us better understand the structure of our client base and predict the future behaviour of our customers.

The knowledge we have accumulated about our customers (around 100 indicators for every profile) helps increase the impact of regular targeted marketing campaigns.

## Big data is primarily leveraged to drive improvements in business operations



## Data everywhere – efficiency in everything

### Integrated business planning

Existing data and technologies to work with that data enable us to implement an integrated analytical platform for business management called integrated business planning.

The main goal of the platform is a single agreed sales plan at all levels of the Company that is focused on meeting consumer demand, improving the Company's main indicators and reducing unforeseen budget expenditures by means of optimal resource management.

The integrated platform allows us to make informed business decisions in terms of managing our pricing and product assortment, predicting demand and making promotions more impactful.

### Product assortment

One of the keys to our customers' hearts is having the right product assortment at our stores. By using a vast amount of purchase data to analyse our customers' consumer missions, we have been able to develop a tool for evaluating the effectiveness of our current product assortment. This tool enables us to identify grey areas in terms of how representative various customer demands are in respect of our product assortment, and it allows us to back up decisions concerning the development of our assortment in a way that achieves the desired effect.

### Promotions

Machine learning algorithms enable us to identify promotional offers that are attractive to our customers and profitable for the Company. Promotions that have been launched based on the recommendations generated by these algorithms are already beginning to show greater impact than campaigns planned through traditional methods. The use of big data algorithms enables us to evaluate the effect of promotions not only within categories but also on the entire consumer basket.

### Pricing

Another objective of our big data algorithms is to offer a price that meets customers' expectations and that, at the same time, is satisfactory in terms of business performance.

Our algorithms allow us to determine those goods whose prices differentiate us from our competitors and to identify conditions that are sufficiently advantageous to shoppers. Daily monitoring and pricing flexibility (right up to the individual store) are tools that help us manage our competitive advantage.