



Presented to



CONSULTING

Presented with



USE THE CIRCULAR ECONOMY AS A DRIVER TO REACH MORE PATIENTS BY 2050 WHILE STRIVING FOR ZERO ENVIRONMENTAL IMPACT

Questions & Considerations	Pharma as a Service	Impact						
<p>1</p> <p><u>Awareness</u></p> <p><i>How can Novo Nordisk increase diabetes awareness and encourage more individuals to get tested?</i></p>	<p><i>AWARENESS CAMPAIGNS</i></p> <p>Intervene early in the customer journey through Awareness Campaigns launched in collaboration with The American Diabetes Association across high-risk communities in the USA.</p>	<p>Capture additional</p> <p>481K</p> <p>new customers</p>						
<p>2</p> <p><u>Patient Support</u></p> <p><i>How can Novo Nordisk support their patients once they are diagnosed and have purchased their device?</i></p>	<p><i>LIFESTYLE APPLICATION NovoAPP</i></p> <p>Launch a lifestyle application for all patients using a Novo Nordisk device, tackling all 5 Core Patient Needs and offering a holistic approach to living with the disease.</p>	<p>Sale Increase</p> <p>4,722 M DKK</p> <p>(6.4% CAGR 2025)</p>						
<p>3</p> <p><u>Circular Economy</u></p> <p><i>How can Novo Nordisk decrease their environmental impact in their value chain?</i></p>	<p><i>GIVE DEVICES AS SECOND LIFE</i></p> <p>Transform the take-make-waste model into a circular economy by giving devices a second life via a more frequent use of the Autoclave and acquisition of Terragon's MAGS technology in the value chain.</p>	<table border="0"> <tr> <td>Market Share Increase by</td> <td style="border-left: 1px dashed black;">Saving</td> </tr> <tr> <td>3%</td> <td>4K tons</td> </tr> <tr> <td></td> <td>of plastic yearly</td> </tr> </table>	Market Share Increase by	Saving	3%	4K tons		of plastic yearly
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Novo Nordisk current standing with the task at hand

UN Sustainable Development Goals (SDG)

Out of the 17 sustainable development goals, we have identified 5 that are fair game for Novo Nordisk.



Patient Changing Needs & Demands



- ✓ Democratization of information - crucial that Novo Nordisk start participating in the conversation patients are having with Dr. Google
- ✓ Embracing the 5 Core Patient Needs

Be a Driver of Change

“We don’t wait for change, we drive change”

- Lars Fruergaard Jørgensen, CEO of Novo Nordisk

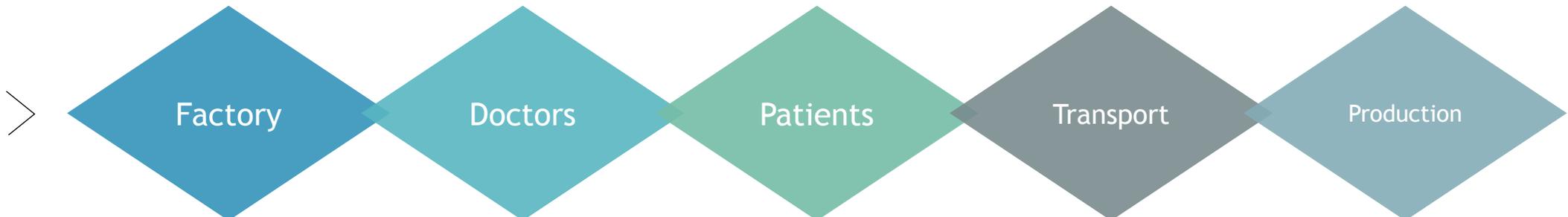


Implementation

Setting Novo Nordisk in the right direction in order to **eliminate waste as much as possible by 2050.**



Key Players in the Supply Chain



United States as Ideal Initial Market

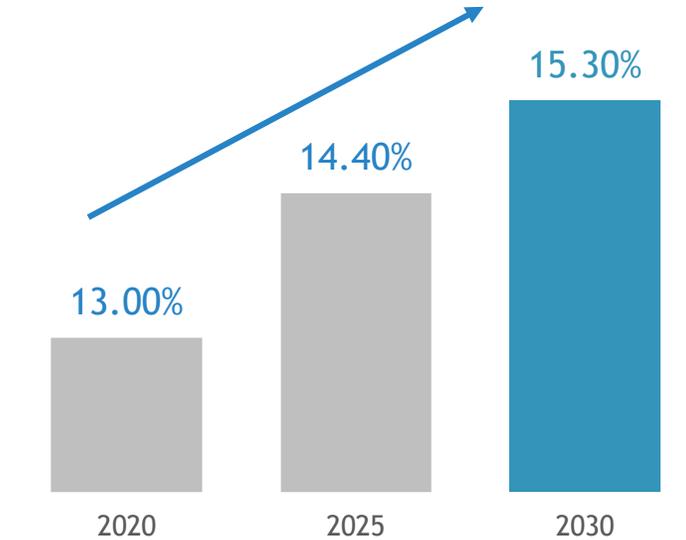
The United States has yet to combat the stigma associated with diabetes and the disease shows little sign of slowing down

The American cities with the highest at-risk population of developing diabetes:

Miami, New Orleans, Charlotte, Detroit, Houston, Dallas, Philadelphia, Atlanta, NYC, Boston, San Diego, Los Angeles, San Francisco, Chicago, Las Vegas, Seattle, Washington DC & Minneapolis



PROJECTED DIABETES RATE IN THE US



38%

By 2030, the diabetes rate in the USA is projected to rise by 38%. This will reach 15.3% of the population.

30M Americans

Suffer from Diabetes making it the 7th leading cause of death

\$300BN

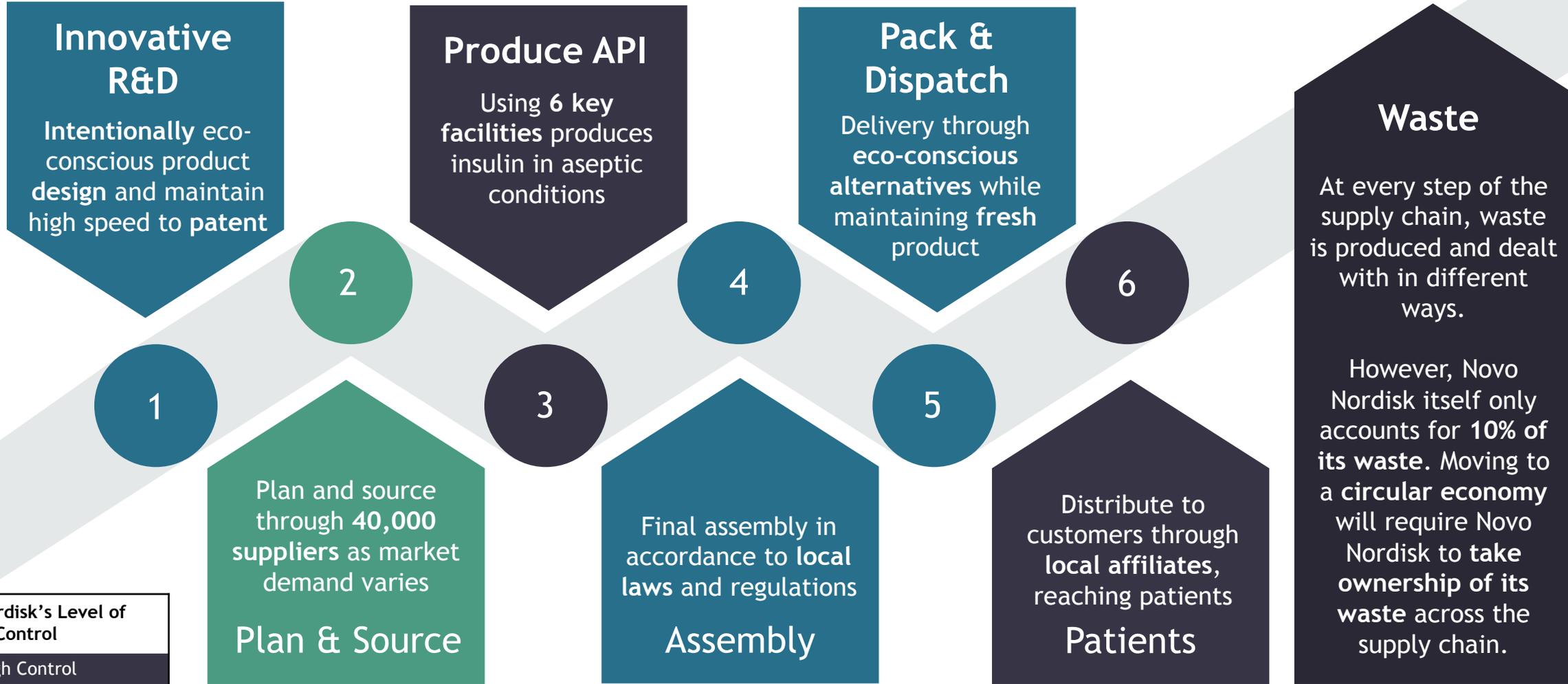
Total cost on American healthcare

Free Market Approach

Enables Novo Nordisk more freedom and leeway in regards to marketing techniques

Given the American markets' large size and steady long-term growth rate, we are confident that continuously investing in patient well-being as well as piloting circular economy initiatives in this region will enable Novo Nordisk to increase their outreach while diminishing environmental impact, setting the stage to scale projects globally.

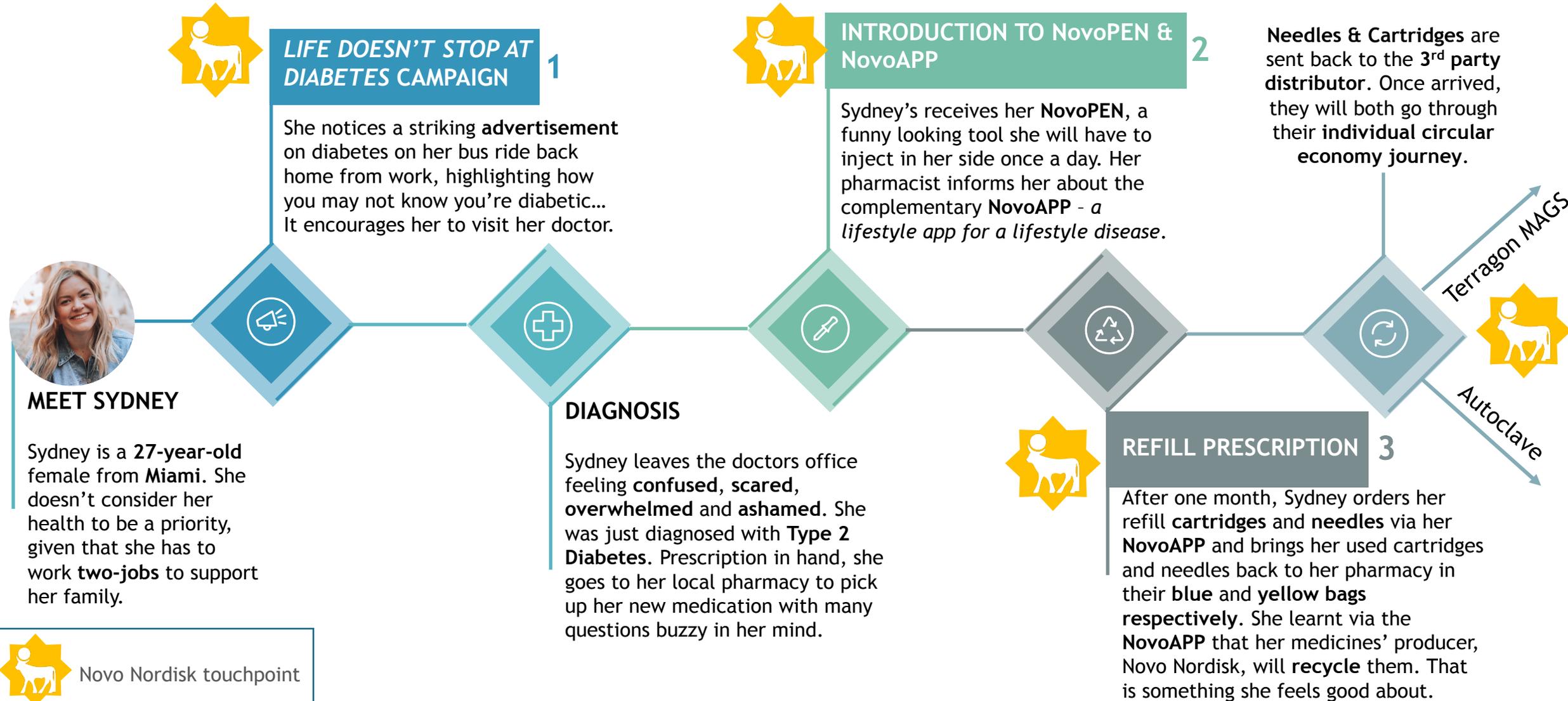
Focusing on areas of the supply chain where Novo Nordisk can take leadership in reducing environmental impact



Novo Nordisk's Level of Control
High Control
Medium Control
Low Control

While Novo has achieved great environmental sustainability upstream in its supply chain, they need to make their customer journey more sustainable through the circular economy

The PaaS Strategy increases the number of touch points with the patient



1.1. Capturing Lost Margin from the *Rule of Halves*

Certain social classes in the United-States are disproportionately at risk of falling within the *Rule of Halves*

STRATEGIC GOAL

- ✓ Bringing people to **question their lifestyles** in light of diabetes information
- ✓ **Patient-centric approach** from Novo Nordisk in ensuring proper treatment for all
- ✓ **Democratize information** for at-risk populations in the U.S., allowing Novo to compete with Dr. Google

HIGH RISK AMERICAN POPULATION

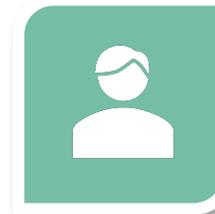
Among U.S. adults with less than a high school education, 12.6% had diabetes

12.6%

38%

Within U.S. minorities, making up 38% of total population by 2060, 22% of *Hispanics* and 20% in *non-Hispanic blacks* were affected by Type 2 diabetes

Consistently more prevalent with *males*



1/4

Nearly *1 in 5 adolescents*, and *1 in 4 young adults* are living with prediabetes

3 GOOD HEALTH AND WELL-BEING



Ensure healthy lives and promote well-being for all ages at all ages, with a focus on maternal and child health.

How to target high-risk groups


American Diabetes Association

Localizing treatment through the financial support of Novo Nordisk



Workshops

Educational & awareness workshops organized in collaboration with support groups, tailored to at-risk populations

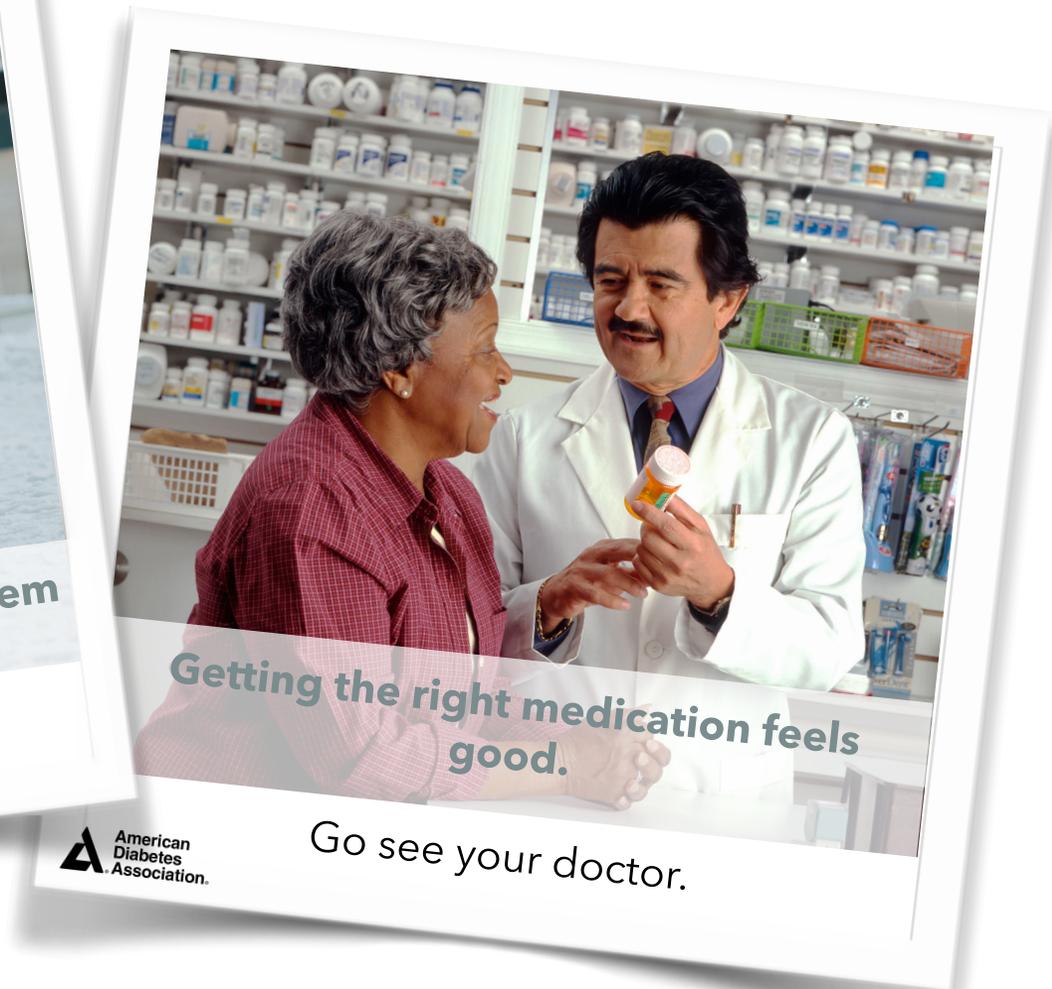
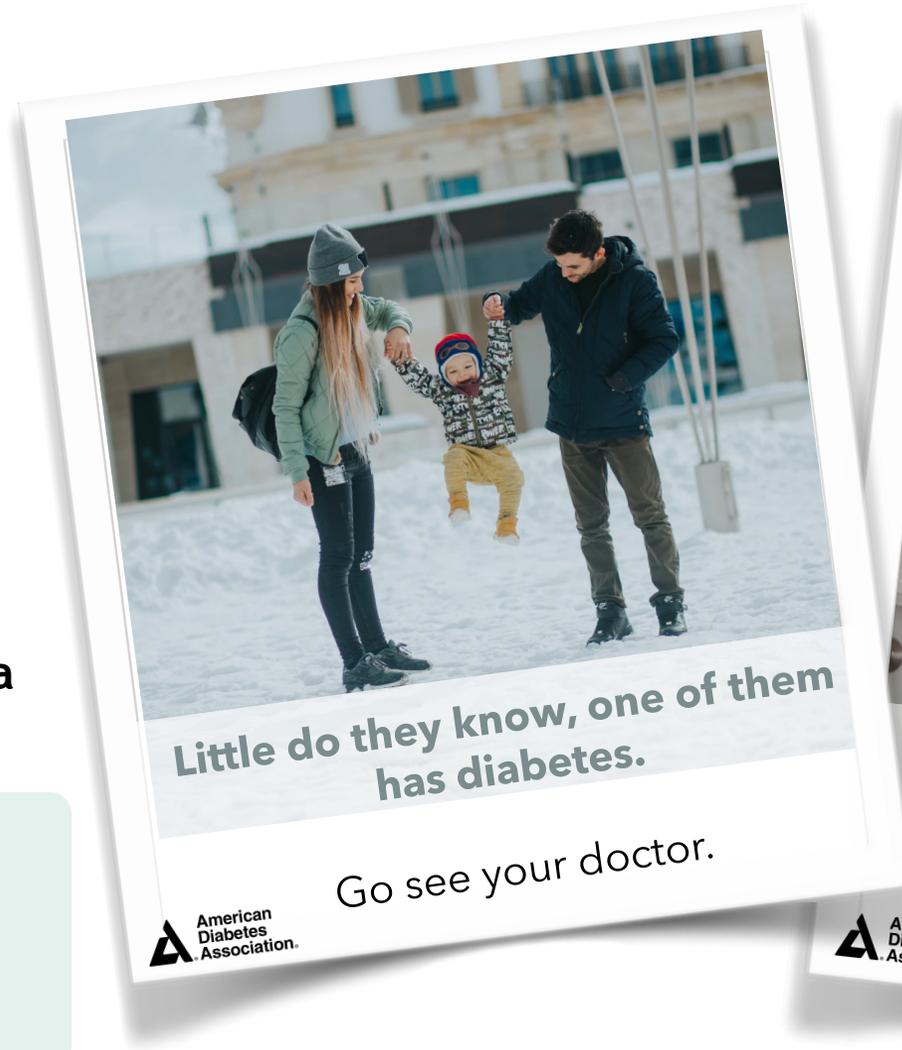
1.2. A Patient-Centric Marketing Campaign

Life Doesn't Stop At Diabetes, Neither Should You

Of the **30.3M** Americans with diabetes, **7.2M** remain undiagnosed which represents **24%** of affected individuals.

Case study Prostate Cancer in Canada

- Bringing a disease typically regarded **negatively** (weakened masculinity) into the public eye
- Incentivized men to really **think about their health** and seek treatment



2.1. A Lifestyle APP, for a Lifestyle Disease

Equipping patients with an integrated toolbox, helping them tackle their new normal with confidence

HOLISTIC TREATMENT

A Comment Box enables patients to communicate directly with Novo Nordisk, providing live customer experience feedback

SOCIAL SUPPORT

Address patient queries & health concerns via a 24/7 chat box, powered by machine learning

BALANCING LIFE & DISEASE

Equip patients with tools to fight stigma, gain self-confidence and openly discuss mental health through educational blog posts

SELF-CARE CAPABILITIES

Simple nutritional & fitness plans educating patients on healthy lifestyle tips that will help shape their new normal

REDUCE COMPLEXITY

How-To videos and step-by-step tutorials demystifying patients new Novo device



Offer patients a digital toolbox filled with integrative solutions answering all 5 CORE PATIENT NEEDS, no matter their socioeconomic background.

DOWNLOAD APP & QR CODE

A QR code on promotional pamphlets will encourage patients to download the NovoAPP after purchase of their device at their local pharmacy.



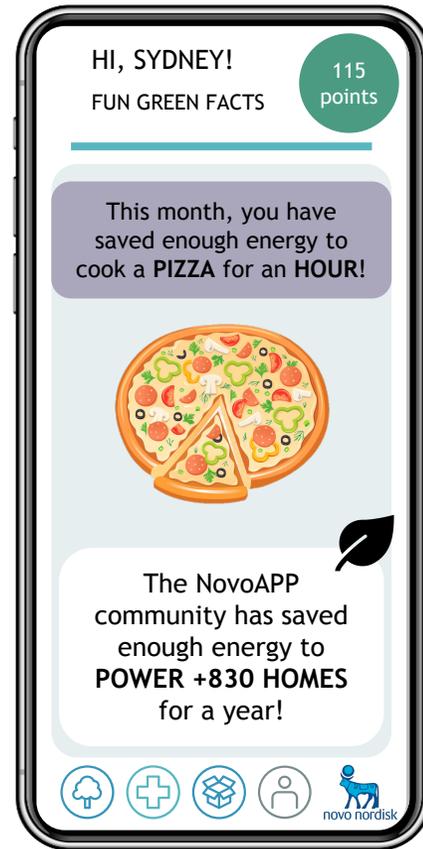
FACILITATE PRESCRIPTION REFILLS

Enable seamless patient refill experience with an in-app order functionality, connected to patient's pharmacy of choice.



2.2. APP Gamification & Incentives

Further incentivizes APP users to cumulate Greener points through fun facts, measuring the tangible and positive impact a patient is having on the environment



ENVIRONMENTAL AWARENESS THROUGH GAMIFICATION

The NovoAPP will incentivize patients to return their disposable device's pieces, through push notifications and gamification, to their pharmacy in order to reduce their environmental impact.

Once returned, the patients notify the APP and are awarded *Greener points* to their profile.

Patients can compare their Greener score with other community members.

Everyday Benchmarks

Help patients measure the positive impact they are having on the environment in ways that they can truly measure, not vague statistics.

Ripple Effect

Novo Nordisk will be at the root of greater change by nurturing an eco-conscious mind-set within their patient community.

3.1. One third of our most recyclable products achieve current sustainability goal



Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

CURRENT PROCESS

FUTURE PROCESS



REUSED

The **pen** is currently the only part of the treatment which can be reused by the patients, they generally **keep it for numerous years**

REUSED

We will continue to invest in innovative and long-lasting pens while educating customers

SINGLE-USE

After their use, the **cartridges**, depending on where it is used, can be thrown in the recycling bin, **however**, it means that we would be relying on local authorities

MULTI-USE

At the heart of the **waste problem**, cartridges are going to be shipped back to the filling centers, sterilized, filled-again and sent again to the customers

TAKE-MAKE-WASTE

Needles, and **single usage pens** are considered as biowaste, there are strict legal constraints which forces needles to be taken care off by specialized companies, they end up in **landfills**

SOURCE OF ENERGY

Needles will now be dealt with in-house with the latest technology improvements, they will be burnt and will **provide energy** to the local distribution centers

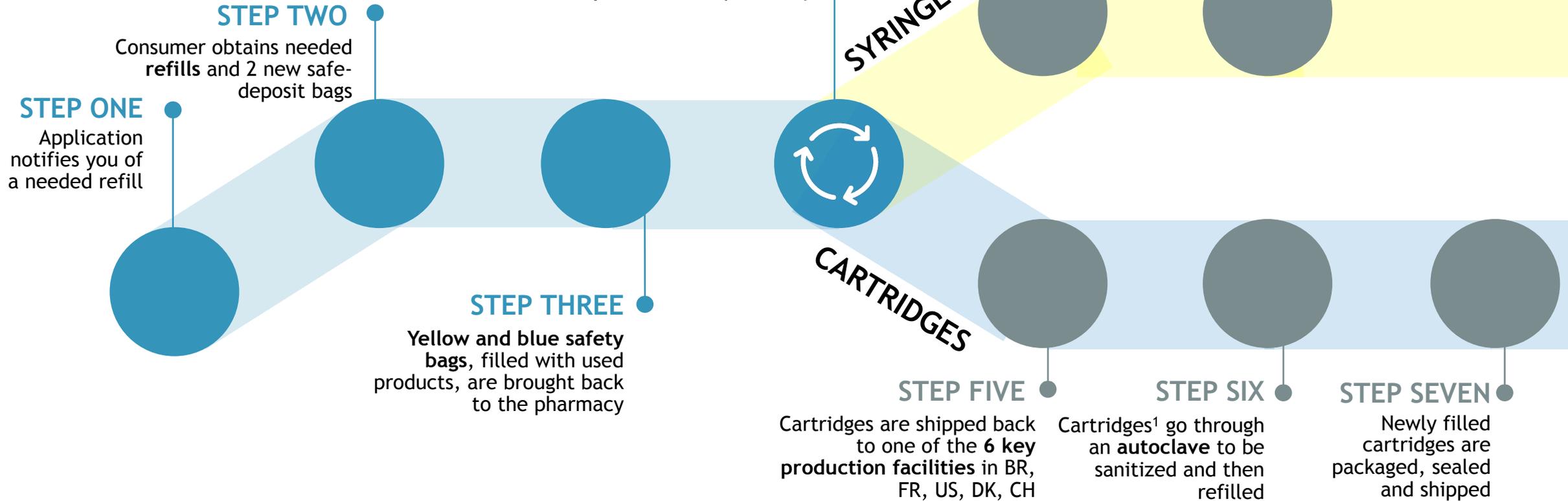
3.2. Making a True Shift to Circular Economy



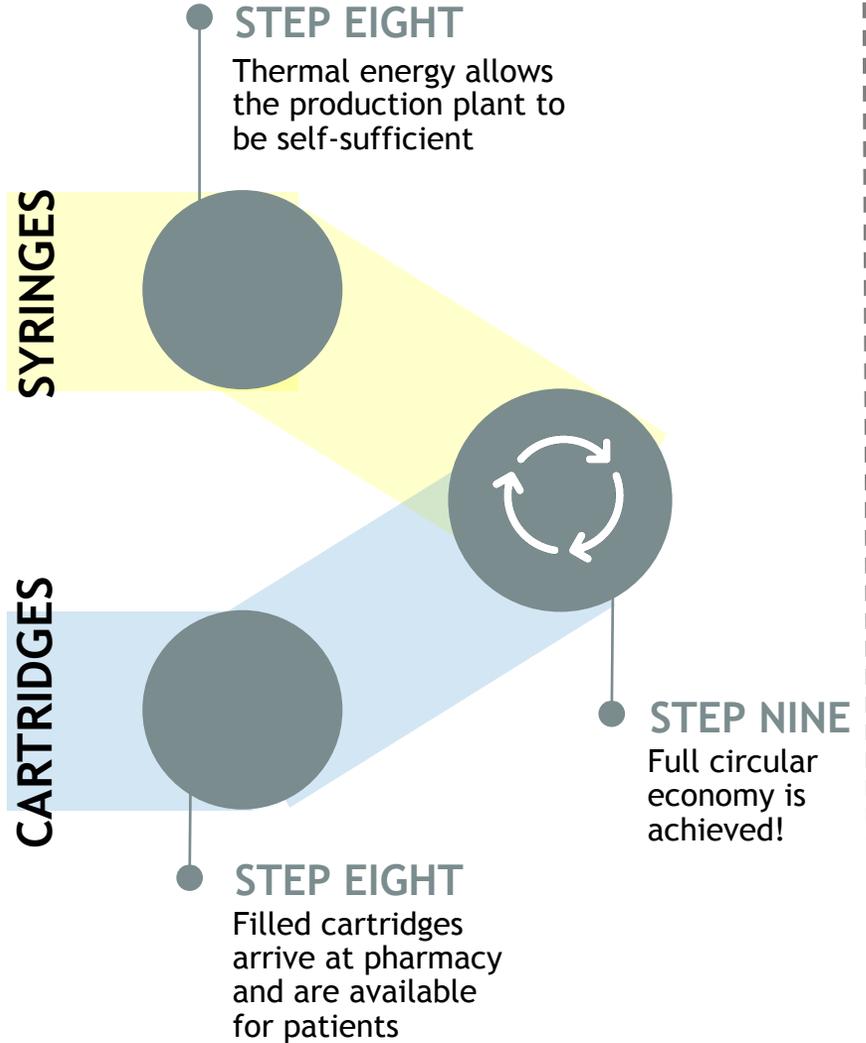
Goal 12: Ensure sustainable consumption and production patterns



Goal 13: Take urgent action to combat climate change and its impacts



¹ Plastic recommendation for reusable cartridges is Polypropylene (PP) or Polypropylene copolymer (PCO)



TERRAGON'S EXPERTISE



Terragon Environmental Technologies Inc. is the unique, Montreal-based firm, that invented the Micro Auto Gasification System (**MAGS**). Without any preprocessing, the MAGS unit is able to break down waste, including medical waste (ex: sharps). The only byproduct of the process is **non-toxic char**; no CO₂ is emitted, and no water is contaminated.

STRATEGIC ACQUISITION OF TERRAGON

-  **Taking ownership of bio-medical product waste**
Recognizing the waste produced throughout the lifecycle of their products
-  **Ensuring scalability of the solution**
By allowing Terragon to grow through an embedded market of third-party suppliers, Novo Nordisk allows them to achieve economies of scale and embed them throughout the whole supply chain
-  **Ensuring sustainability as a competitive advantage**
First large pharmaceuticals firm to complete the circular economy-based design, distribution and sale of a zero-waste insulin product

CAD 11M
Annual Sales
X

3.58x
Industry Average + Premium
=

CAD 40M
Enterprise Value

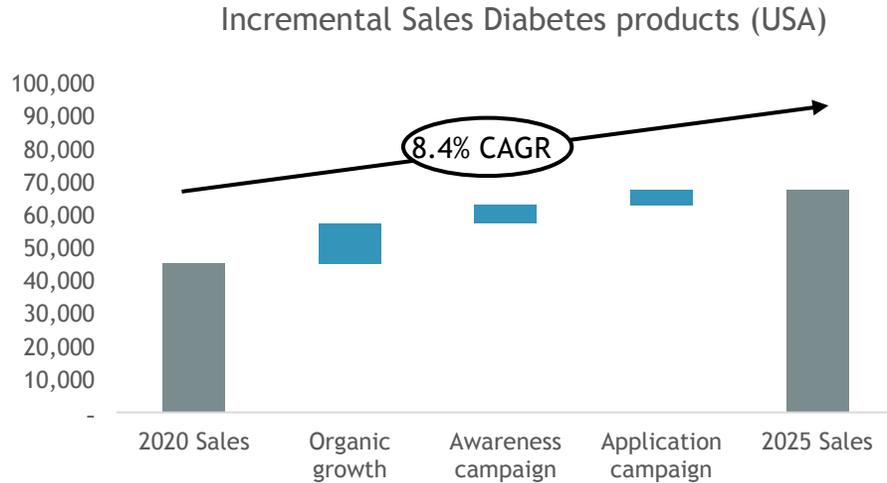
Price: 200M DKK

The Outreach Initiative Supports the Efforts Towards a Circular Business Model

The proposed project is both attractive from a top line and a bottom line perspective

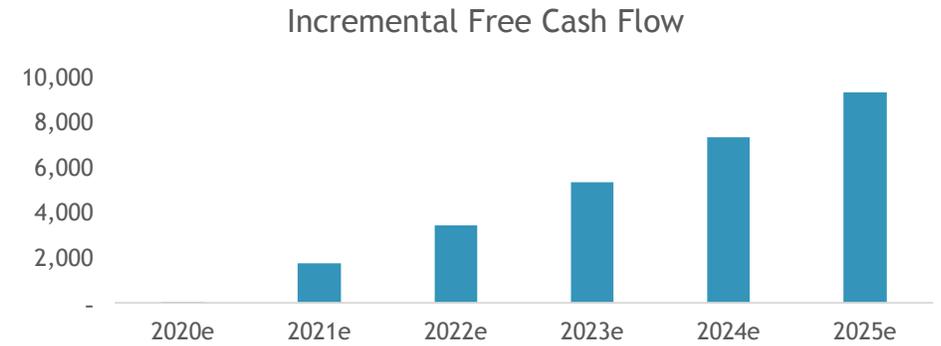
Project Sales in USA

Millions of DKK



Project Results

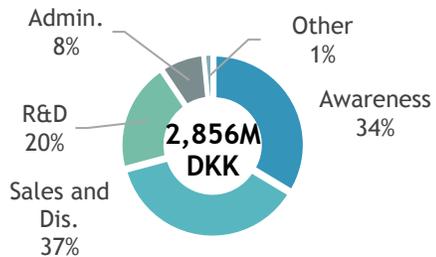
Millions of DKK



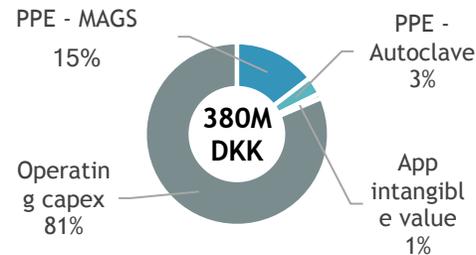
Project Costs

Millions of DKK

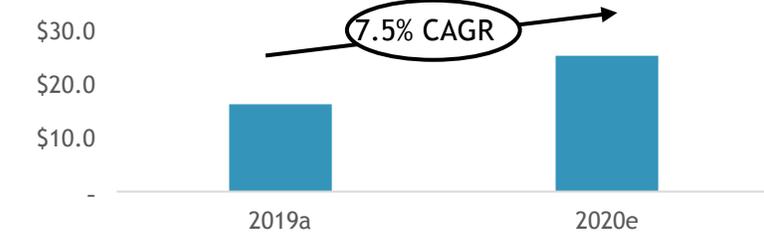
Operational Expenses (2020)



Capital Expenditures (2020)



Earnings per share



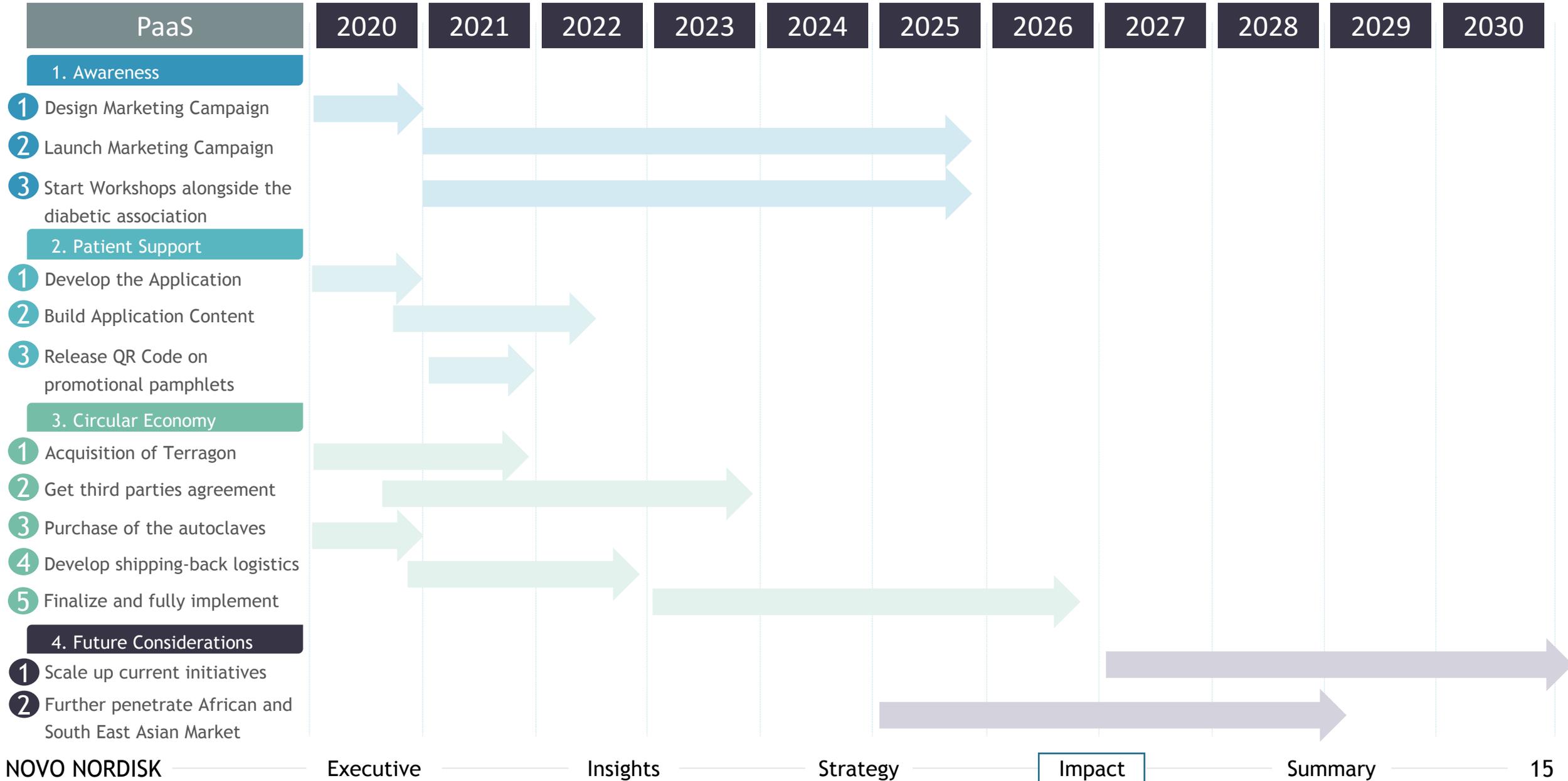
WACC = 8.4%

Net Present Value = 111,065M DKK¹

Current value per share = 435 DKK	+	Project value per share = 39 DKK	=	New implied value per share = 473 DKK
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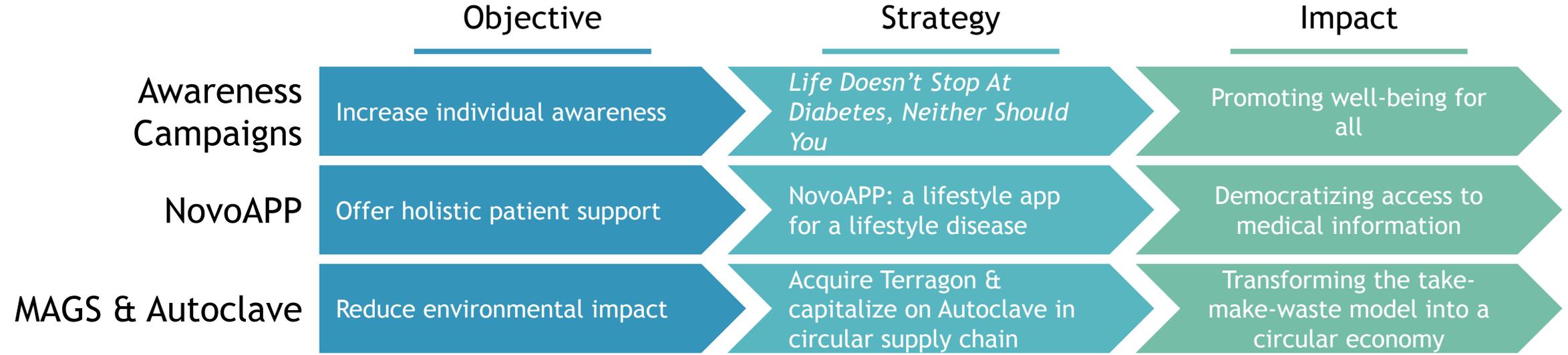
By implementing the PaaS strategy Novo Nordisk will be able to create 111,065M DKK in value while boosting its per share price by 39 DKK and growing its EPS by 7.5% annually till 2025

The PaaS Strategy Will be Implemented Throughout the Decade to be Ready For A Scale Up



Key Takeaways & Future Considerations

A strategic overview of the *Pharma as a Service* strategy



KPI's	Share Price Increase	Saved Plastic	Energy Generated
	9%	3,863 Tons/yr	9.2M kW or 839 Homes

Our PaaS Strategy enables Novo Nordisk to use a circular economy as a driver to reach more patients by 2050 while striving for zero environmental impact, aligned with 5 SDGs