

# THE STATE OF FEMTECH

Current state  
and future  
of the FemTech  
industry



UNTITLED KINGDOM

The State of FemTech  
Current state and future of the FemTech industry

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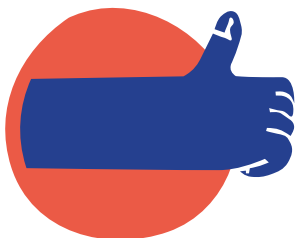
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Krakow 2020



# THE STATE OF FEMTECH

## Current state and future of the FemTech industry

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## Dear Reader,

we all feel that the FemTech market is maturing, and awareness is growing. But, what are the facts? In this publication, the data and experiences of people closely related to FemTech are solid proof of these presumptions.

At Untitled Kingdom we've been following FemTech since 2014. Even before it got its name, we've been partnered with Elvie and MysteryVibe, developing with them FemTech products. Long story short, that led us to organizing events with FemTech Collective in the USA and cooperation with Women of Wearables in London.

Many unanswered questions in conversations with people close to FemTech caused our need to create the "State of FemTech" with our expertise from the practitioner's view.

You may ask, what do we want to achieve with this publication. First of all, we hope that our "State of FemTech" will encourage women to create the products they've been thinking about, even if they start with a small market segment. Secondly, we try to show how important FemTech has become, to share our long-standing knowledge, and importantly, to share experiences of interviewed entrepreneurs who have succeeded in this field. Thirdly, we wish to help those who are already trying to build a great product but are not sure how to optimize it or get funding for further development. Last but not least, we want to show to those who are hesitant to invest in FemTech that honesty, purpose, personal experience, and expertise make up the secret sauce of products that change the world.

At Untitled Kingdom, we strongly believe that technology should help people to solve their problems and improve their daily lives, which is the essence of FemTech. I hope this publication will be an interesting, substantive and inspiring reading for you. If you have any impressions you want to share, we all are receptive to feedback.

Have a nice reading and please feel free to contact me.

A handwritten signature in blue ink, appearing to read 'Piotr Zajac', with a stylized, cursive script.

Yours sincerely,  
Piotr Zajac  
CEO at Untitled Kingdom







# Chapter 1

## WHY



## Why do we distinguish FemTech products from other tech products?

### THE FEMTECH MARKET IS SET TO BE WORTH \$50 BILLION BY 2025<sup>1</sup>

The projections for the FemTech market are very optimistic. Even so, it is quite a small part of the market when “women already are spending more than \$200B a year on FemTech products”.<sup>2</sup>

FemTech was first discussed when in 2016 Ida Tin, the co-founder of the menstrual tracking app Clue used the term for the first time on a panel discussion devoted to female health at the TechCrunch Disrupt conference.

Interestingly, three years later, a dozen or so panels on women’s health and its various aspects were organized at SXSW in Austin, which shows both the growing need to talk about women’s health, the challenges, and the solutions in this area.

Historically, women have always gotten the short end of the stick in terms of healthcare. For decades, healthcare products were designed without much attention to physiological differences between men and

**Women are spending more than \$200B a year on FemTech products.**

women. The long uphill battle for women's rights has been spread over decades, and has come in waves.

## DO WE NEED THE FEMTECH TERM? WHAT ABOUT MENTECH?

Nowadays, with the rise of FemTech, women are no longer simply making do with what's available - they have taken business into their own hands and are using technology to bring improvement, women for women.

When women make up 50% of the population, why do we need to talk loudly about women's health challenges and solutions? Consider what Olivia Goldhill somewhat controversially wrote in her article for Quartz titled "'FemTech' is not and should not be a thing":

**"Though the term 'FemTech' may have served the valiant role of protecting some men from talking about periods, taking a narrow group of products and labeling them 'female' has unfortunate consequences.**

This designation effectively implies that half the population is a sub-niche market with a series of body-specific needs. Where, after all, is the talk of 'MenTech'? There isn't any. All the 'male technology,' such as voice-recognition technology that recognizes male voices better than female, or phones that are too big for women's hands and don't fit in pockets designed for women, aren't designated 'MenTech.' They're just the norm".<sup>3</sup>

Goldhill goes on to mention 1949, when Simone de Beauvoir's book "The Second Sex" was published, in which the philosopher describes a world in which men are regarded as the norm and women as the "other". It is enough to note that the male pronoun is still used as a gender-neutral placeholder, and many categories such as genres of books are either neutral or feminine literature.

As it turns out, in 2019, 70 years later after the publication of de Beauvoir's book, the stigmatization of the "weaker" or "other" gender is still alive, so that giving a distinctive category such as FemTech does not surprise anyone, and even seems necessary, while MenTech does not exist and the term GenderTech is becoming more and more popular.

About 65% of healthcare employees are women, but they make up only 33% of senior executives and 13% of CEOs.

Seven decades have passed since Simone de Beauvoir wrote about the need for equality and feminism, and women in the healthcare industry are still under-represented. “About 65% of healthcare employees are women, but they make up only 33% of senior executives and 13% of CEOs”.<sup>4</sup> Due to such huge disproportions and the dominance of men, decision-makers, procedures, devices and treatment, have so far been dominated by a “neutral” approach, that is, by a standard approach aimed at men.

Because FemTech is a small part of the entire digital health and technology industry and the term is not yet widely used, it is difficult for women to get started in it. As Aagya Mathur said: “Whenever I search ‘FemTech [fill in the blank]’, Google suggests, ‘Did you mean: edtech [fill in the blank]’. That’s a concise illustration of the ‘difficulty’ - even Google doesn’t recognize FemTech as a category”.

## 90% OF WOMEN ARE THE PRIMARY HEALTHCARE DECISION MAKERS

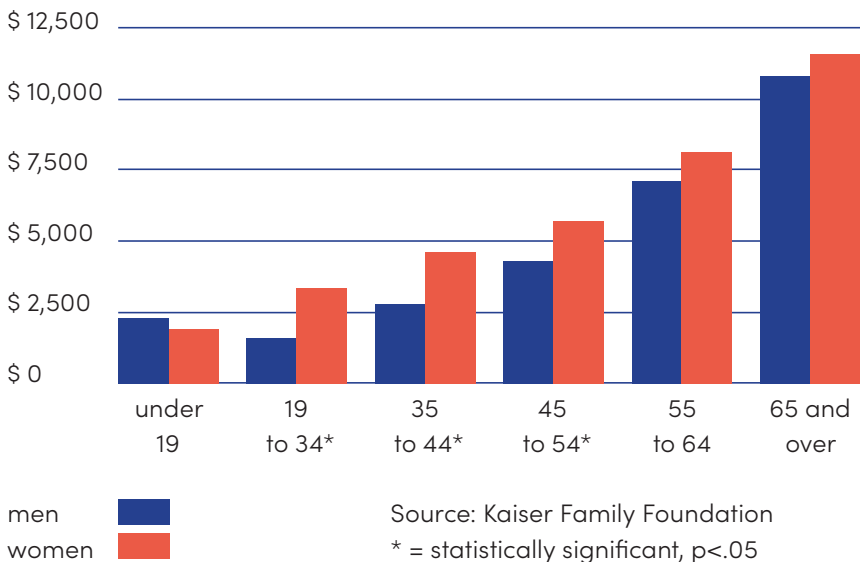
This is a cliché, but female physiology differs from male physiology and because of gender differences, women and men are more likely to develop different diseases. Equality should be about access and treatment, but it should not pretend that we are all built the same. FemTech startups are taking on a wide range of issues and conditions that disproportionately affect women including osteoporosis, breast cancer, autoimmune conditions, stroke, thyroid issues, chronic fatigue, anxiety, and depression.<sup>5</sup>

Interestingly, when services are “neutral” and targeted mainly at men, according to Frost & Sullivan, 90% of women are the primary healthcare decision makers for their households and are also responsible for 80%

of family healthcare spending. Women over age 19 also spend more per capita on healthcare than men.<sup>6</sup> This means that health tech startups should, however, target their offices and services with greater care to women.

Investments in FemTech are, without a doubt, increasing. Only 5 years ago, barely \$100 million in funding went to startups focused on women's health. By 2025, FemTech is expected to reach \$50 billion. According to a HITLAB report, in 2019 alone, FemTech companies have raised at least \$241 million in venture capital funding. Projections put this year at a total of \$1 billion in funding, far surpassing the 2018 record of \$650 million.<sup>7</sup>

Annual per capita healthcare spending, by gender and age group



Such development is strongly influenced by education but still a break with taboos concerning women, such as menstruation, breast tissue support, menopause, fertility, sexual health. This only drives the needs of women, and therefore startup developers, to create products and services that respond to customer needs.

**TECH COMPANIES WITH WOMEN  
ACHIEVE 35% HIGHER ROI  
THAN THOSE LED BY MEN**

As far as financing is concerned, the low level of support for FemTech, especially at the beginning, may be due to the fact that women are underrepresented not only in the healthcare industry, but by VCs too. According to the Kauffman Foundation, private tech companies with women at the helm achieve 35% higher ROI than those led by men, but in 2018, companies with all women founders received only 2.2% of VC funding. And the gender breakdown in the VC world itself may be to blame: Women make up only 9% of venture capitalists working with startups. Finally, only about 4% of funding for healthcare research and development is invested in women's health globally.<sup>8</sup>

This confirms Lexology's Emily Gilmore's statements that most venture capital firms are run mostly by men, and few are able to talk about women's health because of the prevailing taboo, making it harder for them to ask questions about products, technology and funding for FemTech solutions they don't understand.<sup>9</sup>

**5 years ago, barely \$100 million in funding went to startups focused on women's health. By 2025, FemTech is expected to reach \$50 billion.**

# Why are FemTech products made?

## PRODUCTS THAT ARE MADE FOR REAL NEEDS

Our favorite part about FemTech products is that they are made for a purpose. Usually, the reason behind creating them comes from an actual need of the founder or someone close to them. We love working with products that:

- emerge from the needs of people,
- aim to solve real problems, even if for a small group of people,
- change lives, even if in just a tiny but often essential area.

When we asked where the idea for creating her FemTech business came from, Amy Buckalter, CEO & Founder of Pulse said: “It came from my own experience. Entering menopause and using more personal lubricant to ease discomfort motivated my desire to create a product to revolutionize and modernize the entire personal lubricant user experience. From this initial idea, we have developed and patented a delivery platform in a device and consumable model that has endless applications to improve consumer usability with formulations over a multitude of personal care, health, and beauty categories”.

Another great example came from Amy Beckley, Founder and Inventor of the Proov test. She said: “I was infertile and was shocked at the limited resources available for women. I was forced into IVF when I didn’t need it. No woman should have to suffer three miscarriages before seeking help. Proov aims to change that”.

**I was infertile  
and was shocked  
at the limited  
resources available  
for women.**

## PRODUCTS THAT SOLVE REAL PROBLEMS

There are a lot of products on the market, sometimes highly successful, that are created for fun or after identifying an easy way of digitizing offline activities like ordering a taxi, getting a date or editing and sharing a picture with close or not-so-close friends.

We appreciate these products because they're useful, used daily, inspirational to our work, and the best people in the industry create and analyze every tiny bit of them. We also appreciate apps that are created just for fun, but what's closest to our hearts is identifying how technology can help people. Whenever talking to FemTech founders, we find exactly what we admire most in people - the need to solve a problem and help other women.

We often find that what binds the women in FemTech is an incredibly open-minded approach to the world of technology and business. Maybe in the end, it wasn't so bad that many of us heard what we can't do as girls. Maybe that's the reason why a lot of these women have a massive drive to prove that women can change the world and can do whatever they dream of. It's those women who break the taboo, educate girls, engage in social activism, and change the status quo. It's them who try to remove the stigma and encourage girls to explore what used to be reserved for boys.

As Sophia Yen, M.D. MPH, CEO and Co-Founder of Pandia Health said: "I co-founded Pandia Health because I believe no one should suffer from 'pill anxiety' - the fear of running out of birth control and the stress of having to obtain birth control each month. The goal of Pandia Health is to make women's lives better by bringing high-quality healthcare to their fingertips. My friend Perla Ni and I came up with the idea after I gave a talk to doctors about the first reason women don't take their birth control - they didn't have it on hand. We realized we could solve this! Just ship it to the women and keep shipping it (automatic refills) until they tell us to stop. And if they don't have a prescription, as a doctor, I can write them one".

## THE SECRET SAUCE

Women who come up with FemTech startups not only put in all of their experiences and needs to create the best products. Because of the specifics of FemTech, which often requires holistic understanding and medical certification, they seek help from experts in the field such as obstetricians, gynecologists and scientists.

We know that combining the knowledge of founders and their personal experiences with the comprehension of scientists and experts in creating digital products brings the best results. A mix of the highest quality, basis

**The core of the FemTech market is giving women what they often lack for their health, sexuality, and empowerment.**

of merit and human-centered approach from someone who needed this product is what creates excellent solutions. Maybe they aren't the ones earning the most, perhaps not the ones with a billion users, but they are the ones that actually matter for people around the world.

We recently interviewed FemTech founders and experts, and found that their reasons for founding a FemTech company prove that this market is one of the most honest industries in tech. We're not saying that other products don't come from real needs, but we firmly believe that the

core of the FemTech market is giving women what they often lack for their health, sexuality, and empowerment. We also believe that the honesty behind all of the products is the key to success.

As Patricia Cervantes, a SexTech entrepreneur working on startup Vibio said: "My involvement in the industry was certainly mission driven. When I started working in tech, FemTech wasn't even on my radar. However, I've always been drawn to social activism and matters concerning women, so it soon became clear that social impact was where my career was heading.



My co-founder and I have been best friends for 20 years, and we were lucky to have each other to talk openly about our sexuality. As many women from our generation, we were excited by the new wave of feminism and increasing openness about female pleasure. We had our own ideas about the future of sex toys and wanted to do our part, so we decided to start a project that would bring a modern, fresh viewpoint to the sex industry (which up until now has been overwhelmingly male dominated)».

## A “START WITH WHY” APPROACH

### The Golden Circle

Simon Sinek begins his well-known Ted Talk with a question: “Why do some companies achieve things that completely exceed our expectations and defy all of our assumptions for what’s possible?”<sup>10</sup>

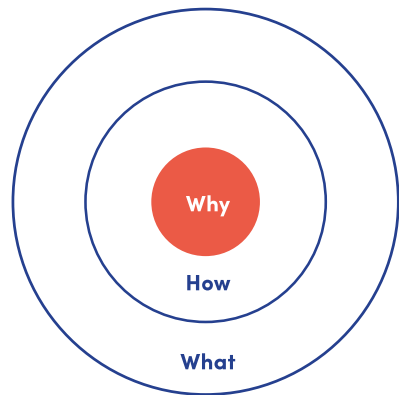
Using companies such as Apple as an example, Sinek shows why a company or project had a chance to succeed in the marketplace, while others failed, despite often similar ideas. In order to explain this difference, Sinek used simple graphics, which he called “The Golden Circle”.

**Why** – This is the core belief of the business. It’s why the business exists.

**How** – This is how the business fulfills the core belief.

**What** – This is what the company does to fulfill the core belief.<sup>11</sup>

After examining many companies, it turns out that most of them start with “what” they want to do. Only then they wonder “how” to do it. Just a few of them ask “why”.



## A BASE FOR FEMTECH

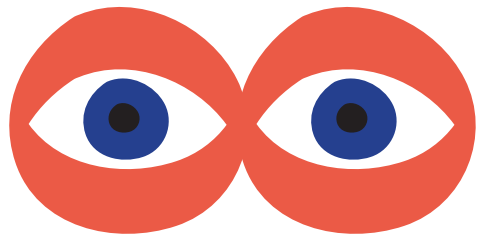
Even before we started this publication, we wondered what defines and distinguishes FemTech at the most general level. After several long conversations, we came to the consensus that FemTech companies are founded to deal with problems faced by the founders or people close to them.

These are ideal examples for putting Simon Sinek's "start with why" idea into practice. FemTech startups came from "why" and real needs for a change in the status quo, specifically a lack of solutions on the market for women. As Ann Garnier, founder and CEO of Lisa Health said: "When I decided to start a company, I knew I wanted to focus on some aspect of women's health. Looking at the FemTech landscape, it was readily apparent that pregnancy and fertility was already a crowded space. Personally, I had moved past that period of my life. What I was interested in is midlife women's health - from the point when the menopause transition begins through postmenopause. Very few companies were focused on this market and the problems women experience. I love to take on complex problems in underserved markets and menopause and midlife women's health fit that criteria".

# Why we created this publication

## WHAT IS OUR “WHY”?

With this publication, we want to catch the current state of the FemTech market and reflect on its future, not only by interviewing the people who co-create it, but also by describing it from the outside-looking-in view.



This publication on FemTech will:

- discuss the dynamically growing market
- guide startups
- identify the biggest challenges
- summarize the reality,- explore future trends

Our “why’s” since the start of this publication have been to:

1. Present FemTech as an important and necessary trend, and the people who build it.
2. Show the current state of the FemTech market, its development and new trends.
3. Share the secret sauce of creating a great FemTech product that can shine and delight end-users, based on our 11 years of experience.
4. Arouse the interest of people for whom FemTech is the main area of activity.
5. Expand and strengthen the network of people connected to FemTech.

Our experts include CEOs, founders, and creators of FemTech, as well as journalists and health experts who have devoted themselves to technology and women’s health. We hope that through their experience we can

inspire people to become entrepreneurs. As Alma Ramirez Acosta said: “Before starting Vibio, I closely followed the growth of the FemTech market. I was fascinated by the appliance of new technologies in the industry’s development of innovative products and services. Out of curiosity, I tested many of these and started crafting ideas for new ones. Ultimately, I realized the potential for change and innovation that exists in the space. Without hesitating, I spoke to my childhood friend Patricia, now co-founder of Vibio, and we decided to embark on this journey together. We knew each other for 20 years and had always been open to explore and talk about sexuality. It was clear from the beginning that our passion for feminism and breaking the sexual status quo would drive our business”.

## **WHO’S BEHIND THIS PUBLICATION?**

“The State of FemTech” was authored at Untitled Kingdom, a product and software development company focused on digital health, FemTech and IoT.

We support FemTech because our mission is to create world-changing products that make a difference and improve people’s comfort in life. This mission did not appear suddenly or by mistake - it was well-planned and has evolved over our 12 years of experience.

Untitled Kingdom’s mission statement is “We collaborate with our Partners to create digital health and IoT products that positively impact people’s lives. Our projects spark change and harmony in the world and align with our values of Quality, Transparency and Family”. We try to achieve this daily through working with such companies as Elvie, MysteryVibe, Remedee, and organizations as FemTech Collective and Women of Wearables.

Working in the challenging field of FemTech has developed us not only as product and software experts but also as people. We are now much more open to talking about women’s health issues, our empathy is deeper, and we strongly believe that everybody deserves equal treatment, access to equipment and services, jobs, and funding, regardless of gender, color, orientation or religion.

# Authors of “The State of FemTech”

## UNTITLED KINGDOM’S TEAM



**Ela Goczyńska-Han**

A strategic marketer who drives value and results across marketing channels. Passionate about business growth strategy and brand development. In her twelve years of experience, she has worked with and been inspired by such brands as Microsoft, Durex, La Roche-Posay, Nescafe, Johnson & Johnson and Johnnie Walker. Alternative coffee and cat lover. A wine evangelist and the guardian of a healthy lifestyle at Untitled Kingdom. Why FemTech? It's all about women's health. If we take a woman's problems out of her head, then she will be able to take care of what is most important to her at any given moment. It doesn't matter if it's a job, hobby, partner or kids - she could focus on her most important activities.



**Sara Marska-Maj**

An experienced product owner with a holistic approach to building a successful business, not just a product. She began her career working with atop European marketing automation tool. In recent years, she has helped create products like VergeSense, Safehub, Blaze and many others. She's now most interested in the digital health and FemTech markets. Enthusiast of service design, coffee, dogs and constant learning.

**Klaudia Raczek**

A marketer interested in digital health, FemTech, IoT, startups and technology. What drives her the most at work is creating meaningful educational writing that helps people solve their problems. As a strategist and copywriter, she has worked for two top Polish marketing agencies and helped develop business for such companies as First Data Polcard, Comarch, CannabiGold, and more than 20 local brands. Culture geek, part-time poet and blogger. Addicted to learning new things and self-development. Bad jokes therapist and French leave enthusiast. A creative mind that no one has ever managed to control.

**Aleksandra Rosiek**

A social media marketer with a physiotherapeutic background, which is why she is close to digital health issues. She combines her knowledge of the human body with IT work. Working directly with patients has made her close to the human side of digital projects. She is interested in new technologies in rehabilitation, something that has been developing very strongly lately. The best researcher in the company. She likes music, tries to play different instruments, but her greatest love is playing the saxophone.

**We collaborate with our Partners  
to create digital health and IoT products  
that positively impact people's lives.  
Our projects spark change and harmony  
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of Quality, Transparency and Family.**

**CONTRIBUTING FEMTECH FOUNDERS AND SPECIALISTS****Jill Angelo**

The CEO and co-founder of Genneve, the first-ever online clinic for women in menopause. Jill has 20 years of experience in the tech industry. She spent 15 years at Microsoft in executive roles such as Chief of Staff to the CMO, Director of Global Media, and Product Management for Emerging Markets. Jill recently joined the Board of Directors for Special Olympics of Washington.

**Debra Bass**

A Global Chief Marketing Officer (CMO) and President at Nuvo Group. She was President of Global Marketing Services at Johnson & Johnson (J&J) Consumer Companies. Debra is an active industry speaker and has spoken at Cannes Lion's Health, and New York Advertising Week. While at J&J, she served on the Global Women's Leadership Initiative Steering Committee and was an Executive Director of the #SeeHer advertising industry initiative.

**Maree Beare**

A founder and CEO of Wanngi, an Australian startup that has developed a multi-platform mobile web app to empower people with their own health and wellness information. Her work with Wanngi has been recognised by Forbes in the top 50 women-led startups disrupting HealthTech, showing the Australian company is becoming a growing influence in the digital health sector.

**Amy Beckley**

A founder and inventor of the Proov test. She's an infertile scientist with a background in hormone signalling. Her battle led her to want to empower women with more knowledge about their reproductive health.

**Rachel Braun Scherl**

As Managing Partner of SPARK Solutions for Growth, she has grown leading brands and counseled a global client base, including Johnson & Johnson, Allergan, Bayer, Pfizer and Church & Dwight. Speaker at Stanford, Duke, SXSW, Abbie, J&J on leadership and female health. Author of "Orgasmic Leadership: Profiting from the Coming Surge in Women's Sexual Health and Wellness".

**Amy Buckalter**

Amy Buckalter is the CEO & Founder of Pulse®, a company that creates personal lubricant warming dispensers and lubricant pods. Her 35-year career includes executive leadership roles with Nike, K2, Rollerblade, and Burton. Amy also led her own growth strategy consultancy – Pivot Partners.

**Patricia Cervantes**

A SexTech entrepreneur challenging preconceived notions of female pleasure by empowering people to explore their sexuality. Currently, she is working on Vibio, an early-stage startup focused on tech and innovative design. Vibio makes app-enabled sex toys for couples to challenge each other to try new things, to encourage exploration, and to play, regardless of location.





**Nick Chang**

A founder and CEO of Pill Club, the leading online birth control prescription and delivery service. It's the only service of its kind to have a retail pharmacy, prescribing birth control in 37 states plus Washington D.C. and delivering to all 50 states. By having its own retail pharmacy and using technology, Pill Club brings personalized reproductive care to members and provides a seamless experience to obtain birth control, including helping women navigate the complicated world of insurance, prescribing medication, and delivering for free.



**Reenita Das**

A Partner and SVP at Frost and Sullivan, Board Member of High Tech High Heels. Runs global business for healthcare consulting, speaker and futurist in healthcare and digital technologies.



**Mary Fenske**

Founder and CEO of Posture Wings™ known for an analytical mind with a systematic approach to invent products and solutions to benefit humankind. Currently striving to disrupt the bra industry to increase women's overall health and wellbeing. She was the leading global analyst for NokiaUSA.com during the explosive growth period occurring simultaneous in the adoption of the internet and cellular phones and later for multiple Microsoft sites. Featured in Forbes, Top 100 in FemTech & HealthTech, Seattle Health Innovator Award, Patented Inventor, HAX Incubator - Shenzhen, China, taught functional fashion theory (product development) class at NC State University, College of Textiles.

**Ann Garnier**

A founder and CEO of Lisa Health, she leads a team to enhance the well-being of midlife women starting with the menopause transition. Prior to Lisa Health, Ann was COO at CarePayment, Senior Vice President, Marketing and Operations at RelayHealth (McKesson), and Vice President, Strategy and Marketing for Paradigm Health (Alere/Optum). She sits on the advisory boards for FemTech Collective and the Healthcare Businesswomen's Association Bay Area chapter.

**Lyndsey Harper, MD**

An Associate Professor (Affiliated) of Ob/Gyn for Texas A&M College of Medicine, a Fellow of The American Congress of Obstetricians and Gynecologists, and a Fellow of the International Society for the Study of Women's Sexual Health. Dr. Harper is the Founder and CEO of Rosy, a women's health technology company that connects women who have decreased sexual desire with hope, community, and research-backed solutions.

**Gloria Kolb**

Gloria, co-founder of Elidah, has 20+ years in the medical device industry, starting with big companies like J&J Orthopaedics (now DePuy) and finishing with a few startups of her own. She has engineering degrees from MIT and Stanford, and an MBA from Babson.

**Vanessa Larco**

Vanessa joined NEA as a Partner in 2016 and focuses on Enterprise SaaS and Consumer Services investing. She is passionate about technology, services and products that enable people to be more productive and efficient at work and at home. Vanessa has led investments in EvidentID, Greenlight Card, Feather, and Lily AI.

**Aagya Mathur**

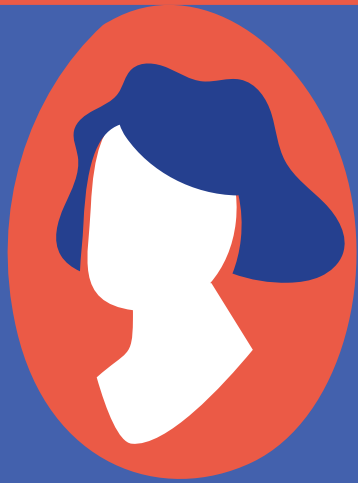
Co-Founder and CEO at Aavia, a company focused on improving reproductive health and wellness. During her consulting career at Deloitte, she worked with various clients to improve patient experience and medication adherence. A graduate of MIT Sloan (MBA) and University of Virginia with Distinction (Neuroscience & Biomedical Engineering). She loves to dance, lives to travel, and is always on a search for the best spicy margaritas and nachos!

**Alma Ramirez Acosta**

A FemTech entrepreneur, currently challenging the approach to female sexuality at Vibio. She is highly passionate about new technologies and their potential to increase sexual well-being, a taboo subject that affects everyone's lives but is rarely spoken about. Her mission is to present it in a natural way to encourage everyone to feel comfortable with themselves and their sexuality.

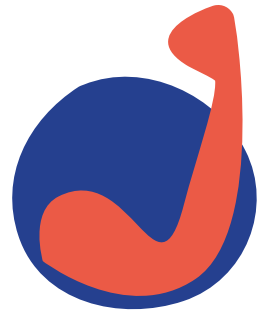
**Nora Scully**

Creative Facilitator, Coach, and Instructional Designer at ScullySpark. She specializes in designing interactive experiences and creating custom opportunities for engagement. She has a Masters in Instructional Design and creates custom Design Sprints to help teams and individuals develop ideas using images, objects and stories to access solutions for companies and their customers.



# Chapter 2

## CHALLENGES AND SOLUTIONS



### Women as entrepreneurs

In most cultures, women work in the household as unpaid care workers. During periods of industrialization, their entry into factories and the world of politics took place quite late, in the United States only at the end of the 19th-century.<sup>12</sup>

The process of women freely establishing companies and obtaining funding for their projects has been quite long and interesting, but in this publication we focus on the data concerning the current state of affairs:

- the current proportions of men and women as entrepreneurs, especially in the United States and the United Kingdom,
- the difference between a company set up by a woman or a man (if there is any),
- at what age and where women entrepreneurs come from,
- how many women-led startups are successful,
- which organizations support #WomenInTech and women as entrepreneurs.

#### WOMEN FOUND 4 OUT OF 10 COMPANIES

Women in the United States found as many as four out of 10 companies. The number of businesses established by women between 1972 and 2018 increased from 402,000 to 12.3 million. From 1997 to 2017 in the United

## Women in the United States found as many as four out of 10 companies.

States, the number of businesses run by women increased by 114%.

As many as 48% of companies in the United States are those managed equally by men and women. They account for 14% of the workforce. According to a Silicon Valley Bank survey, which was completed by nearly 1,400 technology and healthcare founders

and executives in the United States, Great Britain, China and Canada, in 2019 the percentage of startups with at least one woman on the board of directors was 40%. Within a year, companies expect to change this status to 53%.<sup>13</sup>

### **EVERY DOLLAR INVESTED IN A WOMEN-LED COMPANY GENERATES TWICE AS MUCH REVENUE**

A Boston Consulting Group study based on 350 startups shows that investing in women's startups can pay off. There are fewer startups on the market created by women, but every dollar invested in them generates almost twice as much revenue as in companies created by men.

### **#WOMENEMPOWERINGWOMEN**

Many movements and organizations, such as FemTech Collective, Women of Wearables or Women Empowering Women are working for positive changes in the status of women in technology, or supporting their startups. There are created by women and for women coworking spaces such as The Riveter, with several locations in the United States, The Coven in Minneapolis, The Wing in New York and San Francisco or The AllBright in London.

We can also observe a growing number of conferences and events addressed mainly to women in tech and organizations associating and supporting women as technology founders.<sup>14</sup>

## **MOST WOMEN LAUNCH A STARTUP AFTER THE AGE OF 45**

It seems that management and business creation are the domain of young people, but this is only true in the case of male-managed companies. According to American Express data, women aged 25–44 constitute 31% of female business owners with the rest belonging to women aged 45–65. These older women have much more experience with other companies and different positions and only then decide to set up their own organizations.<sup>15</sup> This statement supports Dr. Sophia Yen: “Raising money was the most difficult part of my FemTech journey. As a woman, doctor, older person, mother, I didn’t fit the stereotypical founder image. However, I see those qualities as assets. I know the customer, I have domain expertise, I have connections, I know how to get things done. Also, I was doing FemTech and the VCs didn’t see the need and market, because they were mostly men”.

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women aged 45–65.

## **FIRST UNICORNS ON THE MARKET WITH FEMALE FOUNDERS**

Let’s start with the great story of Rachel Braun Scherl: “Regarding fundraising, I have spoken frequently about our experience trying to raise money during an enormous financial downturn with large companies failing coupled with upheaval and fear. And we were talking about female sexual health - which investors were not comfortable with in the first place. With my business partner, I had 13 meetings in two days in Silicon Valley with potential investors. In the first two meetings, we could hardly get the partners’ attention as they were too busy backslapping, making jokes and snickering about their own sexual escapades. They did not ask the important, penetrating questions

that would indicate some interest on their part and desire to have additional discussion. With 11 meetings left and little sign of any follow-up meetings, we changed our strategy. Maybe through dumb luck or divine intervention, I discovered that I had \$100 bill in my wallet. In between meetings, Mary and I developed a different strategy to try to get the investors' attention.

As we walked into the next pitch meeting, we pulled the \$100 bill out, as planned, and I slammed it onto the table with a resounding thwack, then paused for dramatic effect. I made our planned opening statement. 'Here is a hundred-dollar bill. If anybody here makes a double entendre or joke that we haven't heard before, shares a sexual innuendo that makes us uncomfortable, asks a question about the category that we cannot answer, or even makes us blush, this hundred-dollar bill is yours'. I paused again—a pregnant pause (pun intended). And then delivered what we intended to be a knock-out—the real opening salvo. 'She likes it more. She wants to have it more. Now let's talk about the business model'. Total and complete silence. We finally had their attention and over the course of the business's life raised tens of millions of dollars. With more creative sources of capital - funds investing only in diverse founders, funds specifically for female health and ones that only invest in women - we are making progress".

The fact is, women receive less funding than men. One reason may be that only 9% of VCs are women. A study published in 2018 by the Academy of Management Journal showed that investors of both sexes have more doubts about financing companies managed by women. Women founders get more detailed questions about what they have already achieved (because they are afraid of potential losses) when men founders get questions about their ambitions (and anticipate potential growth in their businesses).

However, the approach of VCs and their attitude towards funding women's startups is changing. This trend is supported by highly successful companies such as Tania Boler's Elvie, which received a \$42 million round of financing in 2019.<sup>16</sup>

Unicorns worth over 1 trillion dollars can also be proud of their successes. In 2018, there were 12 unicorns on the market, in which there was at least one female founder. In 2019, FabFitFun, the first business established by women selling lifestyle subscription boxes to women, achieved this status.



# Education is the passport to the future

## ONE OF THE BIGGEST CHALLENGES FOR FEMTECH STARTUPS IS TO EDUCATE USERS

Education is one of the biggest challenges in healthcare. The health of women and the functioning of their bodies is taboo because of a lack of sufficient knowledge. On the other hand, the taboo is also a result of VCs' aversion to financing FemTech products.

Additionally, to create products that will lead to market success, it is necessary to not only understand the daily problems faced by women FemTech founders but to also have broader social awareness and the willingness of users to search for products and services. Without this, the solutions will not find the recipients, and in turn, the funding. As Patricia Cervantez said: "Women's health and well-being has been traditionally overlooked. The democratization of social communications with digital media means that women can voice their needs and demand solutions that work for them. Tech only makes that easier - it's a shift that's hap-

**43% of women have sexual concerns or difficulties at some point in their lives.**

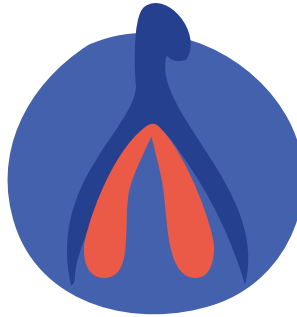
**"Education is the passport to the future, for tomorrow belongs to those who prepare for it today." - Malcolm X**

pening across all industries. Obviously, it's also a big opportunity for women in less accepting societies to get information about sexual wellness that would otherwise be difficult to access".

Therefore, one of the biggest challenges for FemTech startups is to take the initiative, educate the market, and nurture users for their solutions.

Rachel Braun Scherl shares her data and experience: “FemTech can provide solutions to huge challenges facing women and society:

1. 43% of women have sexual concerns or difficulties at some point in their lives.
2. 1/3 of women never experience orgasm.
3. Up to 30% of women suffer from symptoms of incontinence.
4. Fewer than half the states in the US require sexuality education in school with a subset of those not requiring them to be scientifically and medically accurate.
5. Close to 50% of pregnancies in the US every year are unwanted or mis-timed”.



## **THE FIRST ANATOMICALLY-CORRECT SKETCH OF THE CLITORIS IS FROM 1998**

Many girls and women are rarely taught about their own pleasure when it comes to sex. This means that they are not only unaware of sources of pleasure, but they’re also often too embarrassed or scared to explore them. Why is this?

Historically, women’s bodies have been overlooked. The first anatomically-correct sketch of the clitoris is from 1998, when Helen O’Connell of the Royal Melbourne Hospital published her studies on the clitoris. Such work had already been carried out for the sexual function of men’s reproductive organs in the 70s.

## **'80% OF WOMEN ARE IN THE WRONG BRA SIZE', BUT WOMEN ARE NOT THE PROBLEM, THE BRA DESIGN IS**

Another completely different discovery was made by Mary Fenske, regarding breast tissue support. This is a story that every woman should read and rethink: "In 2006 I was in constant pain. One morning I woke up and lost the use of my arms. I began physical therapy (PT) where they diagnosed both my pain and lack of mobility was a result of compression on my neck due to my poor posture and desk job.

I was determined to make something to help posture. I patented the core posture positioning technology and began prototyping my flagship product – bras. It soon became clear that lingerie and sports bra were negative to the female anatomy. That drove me to research the history of breast tissue support; beginning with 100s of years of corsets then bras. Overall problems for lingerie and sports categories are the use of compression, placement, size and style of the circumference band and the shoulder straps.

The current "science" state '80% of women are in the wrong bra size', insinuating that women are the problem not the bra design. Typical 'scientific' testing is on women wearing the innately defective designs. They compare and test for comfort and bounce. They do not test for important health markers, such as biomechanics and strain to the musculoskeletal system (that leads to many chronic diseases), respiration, and circulation".

## **50% OF WOMEN DON'T FEEL CONFIDENT ENOUGH TO TELL SOMEONE THAT THEY'RE HAVING THEIR PERIOD**

The numbers show that the majority of women don't understand the basics of a menstrual cycle. As many as 44% of girls don't know what happens to their bodies when they get their first period, 60% are afraid or embarrassed, and 50% of women don't feel confident enough to tell someone that they're having a period.<sup>17</sup>

There are even more alarming statistics on menopause: 80% of women experience inconvenient menopausal symptoms, 45% in the UK admit that it negatively affected their work productivity, and 47% needed to take time off because of menopause symptoms.<sup>18</sup>

Periods and menopause are not the only issues. Girls and women need information about their own bodies – about the vagina, the hymen, the

**80% of women  
experience incon-  
venient menopausal  
symptoms.**

clitoris, the orgasm; about conditions such as endometriosis and vulvodynia. Knowledge of their anatomy and the processes of their bodies would help them make informed decisions regarding pregnancy, and would help them recognize signs of disease and when to seek treatment.

## **WE ALL NEED A COMPREHENSIVE SEXUALITY EDUCATION**

There are plenty of reasons why there is an urgent need for quality comprehensive sexuality education.

The basic facts are:

1. Women and men's bodies are different.
2. Sex is a natural occurrence.
3. Both women and men can and should have orgasms.

Viagra for men was discovered in 1989 and approved for use in 1998. In 2015, the US Food & Drug Administration (FDA) approved Addyi, a "female viagra", with warnings of potential side effects. In 2019, the FDA approved two prescription drugs to treat HSDD: Addyi and Vyleesi.

4. A period is something natural.

50% of the population will experience a period every month for about 40 years and there is no reason why women should hide pads, tampons, or other hygienic products.

5. Breast cancer is a highly treatable disease.

Screening for breast cancer often enables the detection of tumors at their earliest stages when treatment has the best chance for success. Home breast examinations should be part of a woman's routine, as well as regular screening. All women should be aware of this, yet breast cancer remains the most common cancer in women worldwide and the second most deadly.

6. 80% of women experience vasomotor symptoms during menopause.
7. There were more than 15.5 million employed women in the 44 to 55 age bracket in 2018, according to the US Bureau of Labor Statistics, and more than 33.2 million aged 45 and older. This means about 20% of the working population is either likely to begin menopausal symptoms, or has experienced them already, although the severity varies.<sup>19</sup>

However, many people find it difficult, even extremely difficult, to talk about sex and illnesses; it can be a sensitive and awkward topic that raises feelings of embarrassment, shame, or inadequacy. Sometimes it takes the shape of nonsense. As Gloria Kolb said: "People would avoid our booths at women trade shows as they didn't want to be 'associated' with the incontinence problem we are solving".

"In sexuality education, young people learn about themselves and develop knowledge and skills that will help them interact in positive, respectful, and supportive ways with others. Through learning about sexuality, students also come to understand the social and cultural influences that shape the way society views gender and sexuality."<sup>20</sup>

People need access to information and opportunities to think about, question, and discuss issues related to relationships, gender, sexual identities, orientation, and behavior, sexual and reproductive health, and societal messages.

## TECHNOLOGY FOR HEALTH AND SEXUALITY EDUCATION

Technology offers excellent opportunities to make people aware of their sexuality and body but can be a danger by developing false expectations of sex and ourselves. The effect of technology on us depends on where we seek knowledge.

Digital health technologies are more easily disseminated and implemented and have higher efficacy and greater engagement compared with traditional behavioral interventions. Additionally, using technology offers the advantage of privacy, particularly for groups who have been stigmatized around sexual health.

There is great potential in leveraging digital health technologies, especially eHealth apps, to address sexual and reproductive health disparities through education and behavioral intervention. However, there remains a gap in health technology utilization to improve sexual health education and more generally, sexual and reproductive health.<sup>21</sup>

## **UNESCO TECHNICAL GUIDANCE ON SEXUALITY EDUCATION**

To strengthen sexuality education, the first International Technical Guidance on Sexuality Education tool created by UNESCO was released in 2009. Since its release, the global community has come to embrace a bold and transformative development agenda to achieve a just, equitable, tolerant, open and socially inclusive world in which the needs of the most vulnerable are met and where no one is left behind.

The 2030 Agenda for Sustainable Development shows us that quality education, good health and well-being, gender equality and human rights are intrinsically intertwined. Guidance is created voluntarily, based on the latest scientific evidence, and designed to support countries to implement effective sexuality education programs adapted to their contexts.

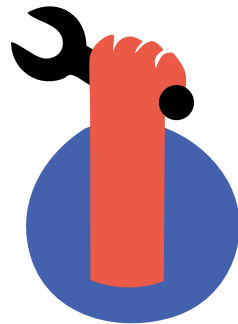
# How to build good FemTech products

## **ANALYTICS CLEARLY SHOW THAT ORGANIC TRAFFIC IS MUCH MORE ENGAGED**

The tech market has been oversaturated for years and browsing through available products to find the valuable ones can be a struggle. Google Play and App Store alone currently offer 4,270,000 applications as of the 3rd quarter of 2019. Without the best quality of app store optimization algorithms, it's nearly impossible for potential users to find what they're looking for just by keywords.

Another side of the issue of creating a digital product is if it can shine among millions of others. Sure, you can pay for PR and ads to raise awareness of your product and lead users straight to downloading your app. But first of all, it requires a lot of investment, and second of all, analytics clearly shows that organic traffic is much more engaged and stays with the product for longer.

It's important to remember that a high volume of downloads is less important for your product than steady growth and constant engagement that impacts the position of your app in the ranks, raises visibility, and most valuably, brings personal referrals.



## WHAT ARE THE TOP FEMTECH APPLICATIONS ALL ABOUT?

The top applications that have recently gained the most funding and attracted the largest number of users are innovative solutions mainly concerning fertility, reproductive health, period tracking and sexual health testing. We think here about e.g. Clue, Syrona Women, Tempdrop, Elvie, Ava, Maven Clinic, NextGen Jan, and Eve Kit.

These solutions are closing the gap in proper access for women to medical care and also help women examine themselves in the comfort of their own home for illness, or to simply learn more about their bodies at specific stages of their cycle.

## HOW TO GET THERE

How do you create something that will get on top? The simple answer is to build a good product but that doesn't really help much, right?

Every product is different and requires a specific approach, has different target users, language, design, etc., but there are some "all-purpose" tips we can share with you that when adjusted to the market, and above all people who can benefit from using your product, will give you the potential to reach the top in your field.

## PROBLEM-SOLUTION

Sometimes an idea comes out of the blue, it just appears in our minds and it's spot on. This is how all those great inventions came to life, right? Well, not really. Even if the solution came unexpectedly, what's common to all great answers is that someone asked the right question first. There are no good solutions without actual problems and although it would be great to sit under a tree and wait for an apple to fall, most of the greatest products in history are actually a result of hard work on understanding the problem.

This is our first tip for a reason. There is nothing more important in creating



a product or a service than identifying the problem, understanding the core of it and then trying to solve it. It's possible that with the right question, an answer can be found with existing tools and technologies and nothing needs to be overcomplicated. We tend to think about tech and digitizing the world around us as something necessary, and sometimes it's true, but in a lot of cases, the small steps make the biggest difference. Sure it sounds impressive if you add artificial intelligence, machine learning and blockchain to your product, but are you sure it's the simplest way of solving the core problem?

If you make sure that you have identified the problem and that you're looking for a solution, not trying to link problems to an idea, you are already on the right path.

As Rachel Braun Scherl said: "Some of the advice I have for people is the same regardless of the industry. Building a business will take longer, be harder, cost more money, and take a bigger toll on your life than you anticipate. Don't glamourize being an entrepreneur. It is energizing, enervating, exhausting, and exhilarating - often all in the same day. You should know why you are doing this. And to use a tired expression, you need passion - not only because you should love what you do, but because when it is hard - and it will be hard - you need to be able to remind yourself why you are doing it.

And if you decide to be in Fem-Tech, be prepared for surprising and mean comments - and roadblocks. Remember that these comments are a reflection of the person speaking and nothing to do with you or your business. Stay focused despite the trials and tribulations until you get to the triumphs. Stand on the shoulders of the people who have been paving the way, driving the conversation, raising the money and fighting "City Hall".

**It sounds impressive if you add artificial intelligence, machine learning and blockchain to your product, but are you sure it's the simplest way of solving the core problem?**

## HUMAN-CENTRED APPROACH

A human-centered approach may seem obvious but looking through existing products, it isn't always the case. We strongly encourage you to think of humans at every level of designing, developing and marketing your product. After all, whether it's B2B or B2C, it's always humans on the other side and the role of your business is to solve their problems. The essence of this approach is that you start with thinking of what a specific group of people needs, how they use your product, what language they speak, what they like, and what is problematic to them. The journey you create, from the moment of first contact with your product, such as an ad or referral, through every interaction with the product, customer support, and your brand, the people who may become or already are your customers should be taken into consideration. If you specify your target group, correctly analyze their needs, and keep this tip in mind whenever making a decision about your product, you will be on the right path to success.

As Jill Angelo said: "Talk to women if you're going to create a FemTech service. Don't make assumptions, but really understand your user. I see a lot of 'nice to haves' out there. Since starting Genneve, I've learned that the most important time spent is talking to women and spending time in our online community. I write a weekly newsletter to our audience of 70,000 women, and I hear from them... and that keeps me innovating in ways that are meaningful to them".

I've learned that the most important time spent is talking to women and spending time in our online community.

## MERIT

If you're in the FemTech business, you're probably aware of the complexity of women's health and issues that technology is capable of addressing. It's not possible to create a product without deep knowledge from the medical and psychological fields, especially those concerning women's physiology. Does this mean that someone who is not a medical doctor, obstetrician, endocrinologist or a psychiatrist, can't work on FemTech products? Not at all! However, such products require a deep understanding of the problems and often benefit from the help of specialists. If you want to create something great, find specialists to validate your ideas and share their knowledge. Doing so will not only give users a better quality product but will also allow them to access the understanding behind it, and you can trust us on that - users love to learn.

## CONSISTENCY

We can't stress this enough. Consistency is what differs great products from average products. We mean consistency at every level of the business and product building process. If what you do, how you communicate, represent and sell it is consistent with the idea behind your business, if your values are reflected in your actions, and if you're honest, customers and investors will trust you and feel a lot better giving you their money. Think of it in a holistic way. What does your brand stand for? Is it clear in your pitch deck? Is the message in your ads consistent with it? Is your social media activity? And your products? Apple is a master of this. If you think of their ads, design of their products, the image they have been built over the last 20 years, what stands out is consistency in every single detail. As a quick exercise, think of your top 5 most used apps (Uber? Instagram? Evernote? Clue?) and try to connect the way they work and look with everything you

**Consistency is what differs great products from average products.**

know about them. Is everything consistent? Is there anything that doesn't fit? What would you change about it? Now, before making any decisions about your products, think if it will be consistent with what you're trying to achieve.

## SIMPLICITY

As they say, "simple is not easy". Simple is difficult but it is one of the main keys to building successful products. When starting a business, we tend to overcomplicate the idea and the message, and the final result is often not clear. We want to give our best by giving more, instead it usually just confuses the ones who should understand

it. Simple ideas and clear goals are easier to communicate and easier to achieve but not always easier to extract. Our tip here is to take a step or two back, think of your idea on a very high level and try to put it in just one word, or at least one simple sentence. If you can't describe your product in a simple way, users may have a hard time understanding it. Once you know how to speak about it simply, try to apply this simplicity in everything

**If you can't describe your product in a simple way, users may have a hard time understanding it.**

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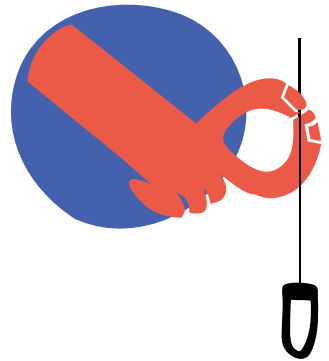
you do - in the amount of information in the product, the features, design and marketing. Remember to test any new features while they're still simple and then build up based on data, but not before your users put their hands on it. We believe intuition is great but it's not always the best answer to keep things simple.

# Advertising products for women

## IS THERE ANYTHING ELSE THAN PADS AND TAMPONS?

While we have become used to seeing men's potency products on the streets, the radio or television, how many products are related to women's sexual health? Even if there are pads and tampons in the media, to what extent is this direct and bold message?

Rachel Braun Scherl shares her experience: "The challenge I face daily with the companies I work with is access to media. Rather than being able to buy media where and when they want to reach their targets, companies have to earn media through PR and social - which is often less predictable. The reality of this is that growth is often slower as companies wade through the barriers and policies (disparately applied to companies for men in this space) by Facebook and many other social platforms. How can companies drive awareness if they can't talk about their product where their potential customers spend time?"



## DOUBLE STANDARDS - OFFLINE AND ONLINE

In the New York subway this year, ads from the Hims company, which sells erectile dysfunction and premature ejaculation products, suggestively showed cactuses standing and slumping. On the other hand, Dame Products, a sex toys for women company, had to sue the Metropolitan Transportation Authority for violating rights to free speech when it refused to promote Dame's products on the subway.<sup>22</sup>

Similarly, double standards also affect the world of online advertising, including social networking platforms such as Facebook and Instagram. These sites often have a much more restrictive policy than the law requires, because algorithms are unable to distinguish between legal and illegal sexual images.

In a digital commerce ecosystem heavily dependent on Facebook and Instagram ads, social media restrictions can be tough on the bottom line of companies coping with them. From a startup standpoint, this makes it tough to accelerate growth for sexual wellness brands. Not being able to run paid ad campaigns has made it very difficult to reach a broader audience and grow a social following. Beyond hurting sales, sexual health brand founders argue bans hinder their missions of providing sexuality education.<sup>23</sup>

On Facebook and Instagram, companies cannot promote adult products and services unless they focus on contraception or family planning, which is why sexual health advertisements are blocked. The problem even affects companies selling bras, lubricants, telephone consulting for women going through menopause or non-profits like the National Campaign to Prevent Teen and Unplanned Pregnancy. Men's sexual wellness products can be advertised publicly because they solve 'health issues' that men face, versus it being a 'luxury choice' for women who buy vibrators or any other sexual wellness product.<sup>24</sup>

As Alma Ramirez Acosta said: "We have encountered restrictions in the industry that have slowed down our growth and development as a company. For example, we are not allowed to advertise on social media, apply to certain VC funds or even open business accounts in many banks. Certainly, there is a lot of educational market development work to be done from our side to fight against the taboos surrounding sex related businesses".

**People responsible for implementing policies on social media must have different social, cultural, sexual and racial backgrounds.**

Which solutions can help to overcome double standards? They could include increasing the number of moderators, or approving or blocking advertisements. People responsible for implementing policies on social media must have different social, cultural, sexual and racial backgrounds. Even so, the possibility of creating authorized accounts for organizations and companies involved in sexuality education or sexual health would help.

## **POSITIVE EXAMPLES**

On Mother's Day in 2019, Elvie decided to give all breastfeeding mothers an unusual surprise. As part of the #freethethefeed campaign, the company installed giant balloons at several locations in London that depicted breasts of different skin tones and sizes. The aim was to fight taboos, stimulate discussion about breastfeeding, and to support all mothers who feel stigmatized when they breastfeed their children.<sup>25</sup>

In a controversial case that received a lot of attention, a SexTech device from startup Lora DiCarlo was awarded at CES 2019, only to have the award revoked and later returned. As a result, Lora DiCarlo will appear at another CES, as well as several other companies dealing with SexTech, such as Lioness.<sup>26</sup>

## FEMVERTISING

The power of advertising to challenge gender gaps and stereotypes is a phenomenal, largely untapped force for good.

Femvertising, which is marketing to women with themes of feminism, has risen sharply as the popularity of the modern-day women's rights movement grows bigger than ever. Many brands have jumped on the femvertising bandwagon, seeking to attract not only female buyers but Millennial consumers and their \$30T of spending power. More than nine in 10 Millennials would switch brands to one associated with a cause, according to research conducted at the Haas School of Business at Berkeley.<sup>27</sup>

What's more, since June 2019, The Committee of Advertising Practice, which is the sister organization of The Advertising Standards Authority, the United Kingdom's independent advertising regulator, has banned harmful gender stereotypes in ads. By introducing new advertising principles, the United Kingdom joins such countries as Belgium, France, Finland, Greece, Norway, South Africa and India, which already have relevant laws aimed at preventing gender discrimination in ads. In Norway, for example, a law prohibiting sexism was adopted in 1978. The Act against Gender-Based Violence, passed in Spain in 2004, prohibits the display of degrading images of the female body in advertising. Meanwhile, Austrian codes rule images that show human sexuality as discriminatory.<sup>28</sup>



# Security and certification

## FDA AND M.H.R.A., THE PRIVACY AND SENSITIVE DATA PROTECTION OFFICERS

Healthcare providers have been slower to adopt IT solutions in the form of strict regulations and secure privacy policies. Patients have also been hesitant to use healthcare apps due to privacy concerns, lack of interest, and their cost.

However, as regulatory governmental bodies like the US Food & Drug Administration (FDA) or Medicines and Healthcare products Regulatory Agency (M.H.R.A) have begun establishing and enforcing these regulations, it's no wonder that development of mobile applications for this sector is rapidly increasing.

FemTech is an industry that deals with complex and sensitive data. But who is the owner of this data? This question makes security and certifications crucial in this type of app. For FemTech founders, the app should be upfront with the privacy policy regarding access to user data.



## THE HIPAA SECURITY RULE TO PROTECT USER'S HEALTH INFORMATION

There are big expectations that consumers should be able to effortlessly check out the privacy policy before downloading the app. Everything we create in the healthcare industry must meet Health Insurance Portability and Accountability (HIPAA) requirements. It is helpful to check out the on-line resources at the Department of Health and Human Services, Office of

Civil Rights, and ACT/App Association websites about how to develop an app that meets HIPAA standards. These docs set the standards for managing sensitive patient data. If your app is not in compliance with these rules, it can't be approved in-store. It is worth mentioning that we need to pay attention to correct work regarding push notifications and messaging within the app.

The HIPAA Security Rule sets national standards to protect every electronic personal health information record that is created, received, used, or maintained by an entity. The rule requires appropriate safeguards to protect a user's health information. Make sure your app meets HIPAA requirements by doubling down on data security with data encryption. This will help you avoid fines, lawsuits, and costly post-release fixes. Also remember to avoid adding non-essential features and functions such as unnecessary complexity to your app.

## **REGULATIONS IN THE UNITED STATES AND THE UNITED KINGDOM**

You don't need to be a major manufacturer of medical devices to develop FemTech applications. Healthcare is one of the most regulated industries in the world. In the United States, all medical apps are under the jurisdiction of the FDA. If your app runs afoul of any regulations, it risks being removed from the marketplace, being shut down permanently, fined by the FDA, or you could even be sued by consumers.

In the United Kingdom, all mobile health apps must abide by the Health Information Technology for Economic and Clinical Health (HITECH) Act, which promotes the adoption and meaningful use of health information technology. The goal is to strengthen the civil and criminal enforcement of HIPAA rules. Its focus is on the privacy and security concerns associated with the electronic submission of health information.

You need to remember that for technical reasons, there is a review process for new iOS and Android apps, but there isn't a review of the medical value of the app itself. FemTech companies must undergo their due diligence and ensure their app complies with all existing regulations.

## The United States market

The FDA admits the broad variety of actual and potential functions of software and mobile apps, their potential benefits and risks to public health. Depending on the functionality of your app, you might need approval from the FDA.

We're sure you have asked yourself this question many times: Does my application require FDA approval in the US? Some requirements are well-defined, but the FDA still reserves the right to regulate any mobile medical device on an individual basis. As a result, medical app developers face a very difficult task when it comes to determining how FDA regulations apply to their product.

The fact that you have an application intended for use within the overall healthcare market does not determine whether it's a medical application or not. So, how do you determine this? The best place to start is with the FDA's guidance, issued in February 2015. "Mobile Medical Applications: Guidance for Industry and Food and Drug Administration Staff Document," is a 45-page PDF that covers a lot of ground.

**In the United States, all medical apps are under the jurisdiction of the FDA.**

Let's make it simpler:

1. Will your application be used on its own or with another device to monitor, analyze, diagnose, or treat patients, or will it make use of patient-specific data involving any form of medical condition? If this question uses any of the words you would use to describe your app, then odds (90+%) are, yes – it will need FDA clearance.
2. Will your application be used for administrative functions, educational and training purposes, or generic aids? If so, then you most likely (90+%) will not need FDA approval.

There is also a “maybe” category: applications with overlapping functionality that “may” fit the definition of being a medical device.

If you are in the earliest stages of developing your idea for an app, consider starting with a Minimum Viable Product and focus on supporting the one feature that would make your end-users recommend your app over others. You don’t want to get drawn into supporting expensive and complicated features where HIPAA or the FDA may add yet more complexity.

### The United Kingdom market

The Medicines and Healthcare products Regulatory Agency (M.H.R.A.) regulates medicines, medical devices and blood transfusions in the United Kingdom.

There are currently over 11,000 medical apps in UK App stores aimed at health care professionals that cover a huge number of disciplines ranging from reference guides to dosage calculators. Apps that gather data from a person or a diagnostic device and then analyze the data to make a diagnosis, prescribe a medicine or recommend treatment are now classed as medical devices.

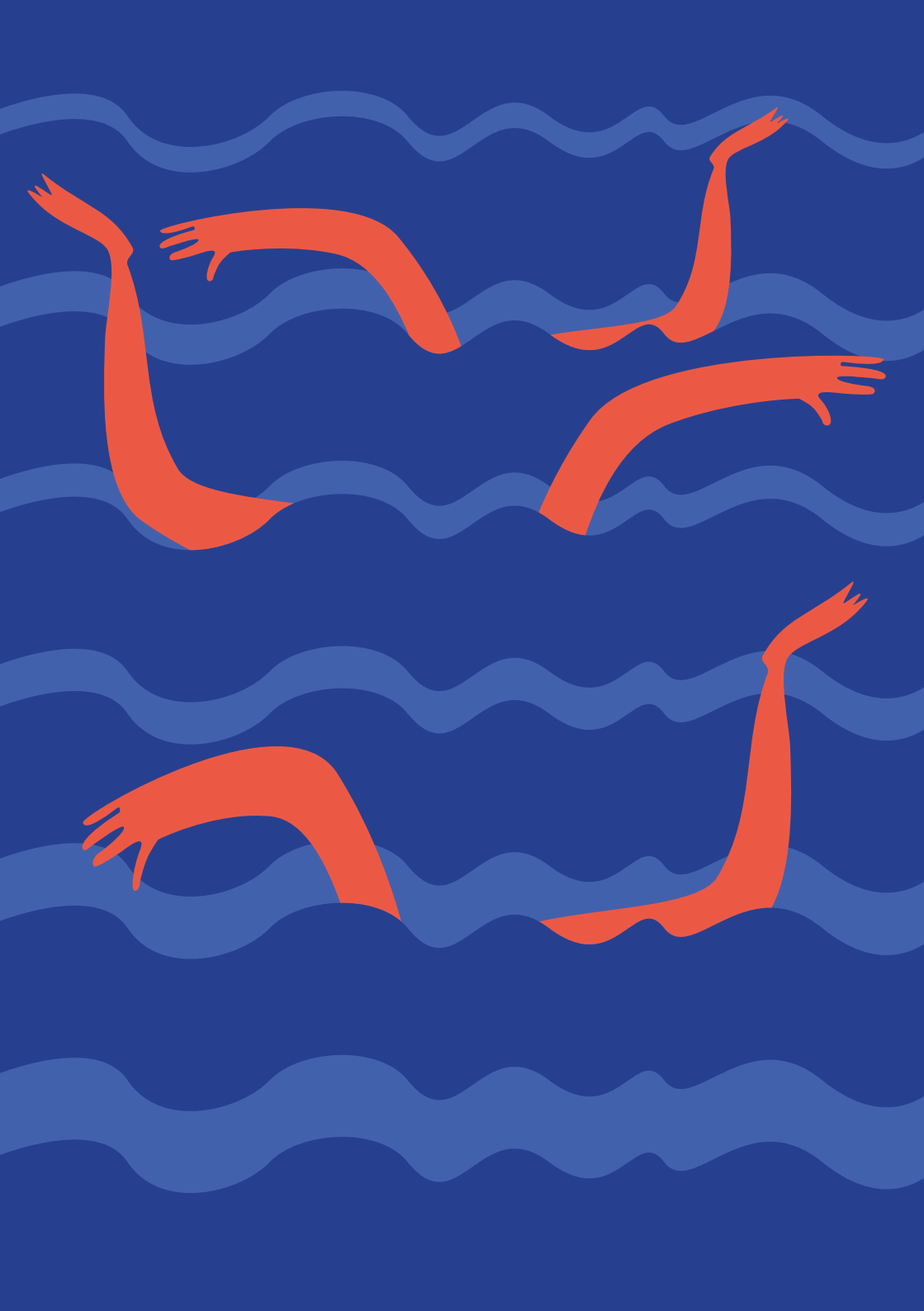
**In the United Kingdom, all mobile health apps must abide by the Health Information Technology for Economic and Clinical Health (HITECH) Act.**

For an app to fall within the definition of a medical device under EU medical devices legislation, it must have as its intended purpose one or more of the “medical purpose(s)” set out in the relevant directive. This requirement has led to difficulty in classifying many apps, as there is often ambiguity as to when the purpose of a general health or well-being app becomes a medical purpose.

The Updated Guidance also includes some helpful clarification as to

the M.H.R.A.'s own approach. For example, in order to fall within one of the medical purposes in the legislation, the app must be linked to a specific disease, injury or handicap. This will give some comfort to developers of more general well-being and health monitoring apps that their apps are not likely to be regulated as medical devices or in vitro diagnostics.

The EU documentation is more detailed and structured than the FDA. However, the good news is that the FDA has increased the range of information it requires including technical and safety standards for risk analysis. So the companies that will be applying for FDA certification, or that have recently completed the process, will obviously meet most EU requirements.



## Chapter 3

# FEMTECH MARKET STATE



## FemTech waves - Where are we?

### Where are we going?

Until FemTech distinguished itself as a separate category from digital health, market solutions focused theoretically on the problems of all. Still, as experience has shown, men's health issues have been mainly addressed. This is evidenced by the fact that the first full and anatomically correct clitoris drawing was made in 1998.

**In the first wave of solutions for women, startups focused on areas that clearly distinguish women from men in terms of physiology.**

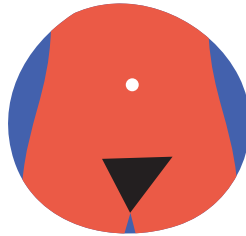
In the first wave of solutions for women, startups focused on areas that clearly distinguish women from men in terms of physiology and reached young people using modern technology. At the very beginning, these were applications and devices related to menstrual health, fertility tracking, pregnancy, and breastfeeding, which were to violate the taboo as little as possible.

Then there were solutions for women who fought against common female diseases, and for such things

as pelvic and uterine care. Only in the next wave of FemTech, along with the growing awareness of users and increasing medical knowledge, solutions focused on improving the mental and sexual health of women began to appear, as well as their general wellness, nutrition, or fitness.

Recently, SexTech aimed at women has been a broader topic for discussion, as has menopause. We anticipate that this will be the most influential trend in coming years, associated with fewer taboos and the fact that more older people use technological solutions.

Why is it profitable to invest and develop FemTech products and services? Research shows that 66% of female internet users look online for healthcare information. Besides, women are 75% more likely to use digital tools for healthcare than men.<sup>29</sup>



## Pelvic and uterine care and wellness

Pelvic problems are widespread in women. The pelvic floor muscles can become weakened, damaged by surgery, pregnancy, and childbirth.

Symptoms of pelvic floor problems include:

- urinary incontinence,
- fecal incontinence,
- constipation,
- pain in lower abdomen or vagina,
- tailbone pain,
- problems or pain with sexual intercourse.



Treatment may include:

- pelvic floor muscle strengthening or relaxation exercises,
- biofeedback therapy,
- manual therapy,
- education and a home exercise program.

There are many apps available that help exercise the pelvic floor muscles, including one from the National Health Service in the UK<sup>30</sup>, but they are mainly used as a source of information and reminders. The most beneficial is the connection of an application with a device that exercises with the user, such as an Elvie Trainer. If digital products are not taken into account, there are many offline solutions on the market that help women exercise the pelvic floor, such as kegel balls, vaginal cones, vagina gyms or digital biofeedback vaginal exercisers.<sup>31</sup>

## Menstrual health, period tracking and birth control

With a market flooded with period tracking apps and devices, it's now much more comfortable for women to track their menstrual cycle. They help to track non-fertile and ovulation days, minimize the risk of unwanted pregnancy, and also help women plan their pregnancy. Some of them also track other health categories, such as body temperature, exercise, pain, sleep, and emotions.

The apps can detect pre-menopausal syndrome or menstrual cycle disorders. They can also explain how birth control pills or emergency contraceptive pills impact fertility, and include a reminder feature for taking medicines. One of the significant and widespread applications in this segment is Clue, founded by Ida Tin. It is integrated with Apple's HealthKit and allows data such as menstruation, body temperature, sexual activity, and spotting to be synced directly to the app.

An insight on birth control from Aagya Mathur: “Roughly half of human-kind is female and in the US most go through a phase in life when they are actively trying to avoid getting pregnant. The Pill is twice as popular as any other form of contraception in the US, yet over 1M women in the US have unintended pregnancies each year from inconsistent use of the Pill. The Pill has to be taken every day at the same time for it to be effective, but we live in a fast paced world with numerous distractions, and we heard from many women that the Pill experience was stressful, a nightmare, or always on their mind. Nothing out there was automatic, so we set out to solve that!”

Similar companies create products such as a wristband to monitor women’s monthly cycles. The tracker collects data on sleep, breathing, and blood flow. These are important factors that inform women about their most fertile days in a month, which increases the chances of becoming pregnant.

One concern about menstrual tracking apps is that the majority of them, especially those available for free, are ineffective. Out of 1,116 free period apps in Apple’s App Store, only 20 were accurate, out of which only 5% cited involvement with medical science, according to a study conducted by Columbia University Medical Center. Most apps did not provide measured evidence-based interventions or valuable information, further cutting the chord of scientific research required to better inform and educate the user on their most fertile days.<sup>32</sup>

An outstanding story from Nick Chang: “I used to work in family planning clinics throughout the Bay Area and saw first-hand the consequences of limited access to reproductive healthcare and the social barriers patients experienced. I was also surprised at how antiquated the system was – both the medical and pharmacy sides of healthcare were (and still are) problematic, disjointed and difficult to navigate.

My experience working in these clinics inspired me to found Pill Club in 2014. Our mission is to help women take control of their own healthcare by providing access to birth control and education in communities around the country. In having our own pharmacy and using technology, we’ve brought personalized reproductive care to members in all 50 states, and provide a seamless experience for obtaining birth control. We also help our members navigate the complicated world of insurance, prescribing medication and delivering for free”.

## Pregnancy and nursing care

FemTech can assist women from pre-pregnancy, through pregnancy to the post-pregnancy stage. There are apps that guide women on their fertility, and also give postnatal care. They count days and weeks, and inform women weekly on the size of their baby. They give advice on their changing bodies, and even suggest pain or stress relief procedures during rough days.

Apps and wearable trackers can monitor body changes during the whole pregnancy. Data collected in the app presents a broader knowledge about health conditions to doctors.

There are solutions on the market that help with newborn baby health monitoring, and nursing care. Women can easily use feeding time reminders, book a doctor's appointment and much more.

Devices such as Elvie Pumps help women with breastfeeding. It's the world's first silent wearable breast pump, which allows mothers to pump wherever they are: at home, in the car, at work, or on a walk. The global breast pumps market size alone was valued at USD 1.8 billion in 2018 and is expected to expand at a CAGR of 7.8% over the forecast period.<sup>33</sup>

FemTech also helps women who are unable to conceive naturally or had a rough experience in an earlier pregnancy. Some companies offer IVF, egg freezing, and other treatments.



## Prenatal screening

The risk of genetic conditions such as Down syndrome can be assessed by prenatal screening. Even though the number of tests is growing, the lack of a patient's knowledge about non-invasive prenatal testing is still a reality. How could decision-making about testing be facilitated by mobile technology?

NIPT Insights mobile app is an educational tool that gives information about testing and screening for the common chromosomal conditions (e.g. Down syndrome). It is especially helpful for women considering non-invasive prenatal testing. The specific information related to screening options in countries is now available in the United Kingdom, Spain, and France, but anyone can download the app.

Also, medical institutions such as hospitals and clinics have started to use technology for collecting and analyzing data, or making evidence-based decisions. The Genetic Sonography App was created strictly for Fetal-Medicine specialists. All calculations are used according to a hospital or clinic's protocols for Prenatal Diagnosis.

The UCSF Fetal Treatment Center app contains information specifically for referring physicians and their patients. It includes treatment guidelines for the conditions the Fetal Treatment Center treats, clinical trial information, educational videos, and news from the center.

## General wellness, nutrition and fitness

Self care is caring about your physical and psychological side. There are plenty of apps focusing on fitness, exercise, nutrition and food. Many of them, if not most, target women, who are the primary healthcare decision-makers. They make 80% of all buying and usage decisions.<sup>34</sup>

Women generally pay more attention to health, and they're more aware of health issues. That makes females a leading group utilizing health tech novelties.

What about the usage of wellness apps? 96% of users are loyal to only one health and fitness app. Over 75% of active users open their health and fitness app at least two times a week, and more than 25% of users access their fitness apps more than ten times a week.<sup>35</sup>



## Mental health

Good mental health is essential to overall well-being. More than one in five women in the United States experienced a mental health condition in the past year, such as depression or anxiety.<sup>36</sup> The same numbers of women and men experience mental health problems overall, but some issues are more common in women than men, and vice versa.

Various social factors put women at higher risk of poor mental health than men. However, women's readiness to talk about their feelings and their secure social networks can help protect their mental health.

**One in five women in the United States experienced a mental health condition in the past year.**

What are the most interesting worldwide statistics on women's health?

- Depressive disorders account for close to 41.9% of the disabilities of neuropsychiatric disorders among women, compared to 29.3% among men.
- The leading mental health problems of older adults, of which women are the majority, are depression, organic brain syndromes and dementias.

- An estimated 80% of the 50 million people affected by violent conflicts, civil wars, disasters, and displacement are women and children.
- The lifetime prevalence rate of violence against women ranges from 16-50%.
- At least one in five women suffer rape or attempted rape in their lifetime.

What we should focus on to prevent mental illness and support women:

- Build evidence on the prevalence and causes of mental health problems in women, as well as on the mediating and protective factors.
- Promote the formulation and implementation of health policies that address women's needs and concerns from childhood to old age.
- Enhance the competence of primary healthcare providers to recognize and treat the mental health consequences of domestic violence, sexual abuse, and acute and chronic stress in women.

In recent years, there's been a proliferation of mental health apps available to smartphone users, which address depression, eating disorder recovery, anxiety, PTSD, obsessive-compulsive disorder, and more.

The majority of apps do not have peer-reviewed research to support their claims, even though experts predict that innovative mobile apps solutions for mental health disorders will play a significant role in mental health care in the future.<sup>37</sup>

## Sexual wellness

FemTech companies have started building devices for sexual wellness. Women have begun to talk about their needs more and more confidently and openly. The FemTech market provides many women-focused solutions, which are slowly coming out from the shadows, starting to appear at the most influential tech conferences, and are gaining more attention.

As Patricia Cervantez said: “Entering SexTech, we’ve had to do a lot of explaining on why sex toys matter, and how our sexual well-being not only impacts our mental health but our physical health as well. There are still misconceptions around female pleasure. Sadly, being two young women in the SexTech industry also means we’ve also had our share of unprofessional advances we’ve had to navigate”.

On the market, there are app-controlled vibrators and kegel trainers that can improve sexual experience. FemTech promises to have women’s backs through every stage of life, across borders, languages, and cultures. However, there’s still a long way to go towards that goal.

## Women think, feel and expose emotions differently

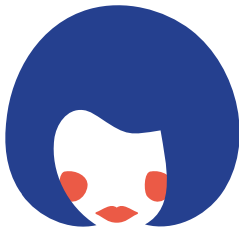
The differences in reproductive organs are apparent. But it’s not the only thing. Sexual dimorphism is the scientific term for physical differences between males and females of a species. Let’s take the chest. Women have breasts, whereas men have flat chests. It’s a commonly mentioned statistic that 80% of women wear a poorly fitting bra. But the problem is not that women can’t get dressed. It’s the bras that are badly designed. Wearing the wrong size bra is not only uncomfortable, but it can also affect our health. 50% of women reported breast pain, which is frequently caused by a lack of breast support. An ill-fitting bra can also lead to skin damage, neck, back and shoulder pain, and permanent changes in posture. Generally, women are more delicate than men. For example, they have smaller hands, so having the latest iPhone is not the most comfortable experience.

**50% of women reported breast pain, which is frequently caused by a lack of breast support.**

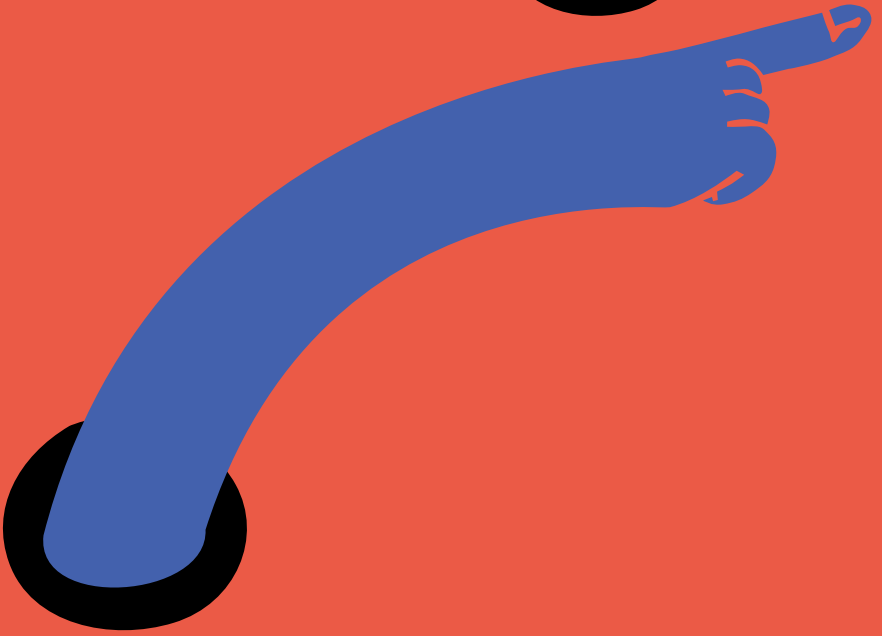
As Ann Garnier said: “There is still so much we don’t know about women’s bodies. For example, auto-immune conditions predominantly affect women. The same for dementia. Why is that? We should be looking more deeply into these areas and figuring out how to solve them”.

There are also many differences in how women think, feel, expose their emotions, and how they dress. Women’s versions of the same jacket model often have no pockets, whereas the men’s version has plenty. Maybe it’s because many women carry a bag. But when hiking, it’s better for a woman to leave her purse at home. Where is a place for her phone then?

Nothing is more important than health, and the interest that technology companies are giving health is significant, and necessary. We have given only a few examples that show there are more unanswered women’s needs, which hopefully will get more prominent attention in the future.

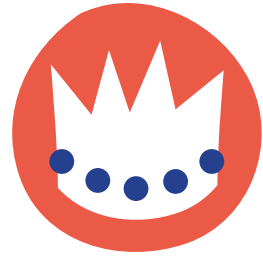






# Chapter 4

## PREDICTIONS AND TRENDS



### Which topics deserve the most attention in the near future?

What are the trends in the FemTech market? Which of them will develop, which are waiting for their moment?

As Reenita Das said: “FemTech sadly enough is very much rooted in menstruation and fertility. But we need to move beyond that to mainstream issues. One in three women suffer from cardiac events in their life, one in five suffer from an autoimmune disease. We need to take FemTech to these areas”.

The same approach has Debra Bass: “We will see two major trends in FemTech. The first is in continuing to address under-served female needs states with new innovation and technology (i.e., fertility, pregnancy, menopause, etc.). The second is in better understanding and serving women across all needs states such as chronic disease, sports medicine, orthopaedics etc. Women are not ‘smaller men’ and the differences in our physical, emotional, and lifestyle needs must be understood and addressed with solutions that truly enable female population health management”.

Based on reports, research, and interviews with FemTech experts, we predict these topics deserve the most attention in the near future:

- combined solutions for women and men,
- breaking the taboo of women’s sexuality, including menopause,
- SexTech for women and focus not only on health but also on pleasure,
- technology solutions for menopause and tech 60+,
- using behavioral data from applications to improve performance and wellbeing in the future,
- the use of data for precision medicine and ethics related to the use of data.

## SexTech for women



### WHAT IS SEXTECH?

SexTech, or sex technology, is a vital component in the overall FemTech category. The global sex toy market is expected to grow by about 40% between 2015 and 2020, from approximately \$21 billion to around \$29 billion in that period. Purchasing and using sex toys is becoming more mainstream. Indiana University studies found that 53% of women and 45% of men aged between 18-64 years had used a vibrator.

The patriarchal norms that say a woman’s ability to bear children defines her sexual utility, and her body is merely for the sexual pleasure of men, are now yesterday’s news.

**53% of women and  
45% of men aged  
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years had used  
a vibrator.**

Fifty years ago, innovations in birth control had a remarkable impact on societies. Women got a chance to control childbearing, manage their careers, new labor market options opened up, and women were allowed to think about pleasure from sex. Even though women who use sex toys have been seen as lonely or sexually deviant for decades, now it is socially acceptable.

What's more, sex toys are now also treated as a useful aid in medical treatment and are prescribed by physicians more and more frequently.

## **SEXTECH AS A PART OF FEMTECH**

As Ann Garnier said: "Sexual wellness is an exciting space. For far too long, women have been made to feel they've had to repress sexual desire. I admire the companies that are tackling this problem head on and empowering women. I also think that the companies addressing issues around low libido, painful sex, and other intimacy issues are doing important work. The majority of women don't talk to their doctors about these solvable problems, which is unfortunate".

Until recently, the SexTech industry was dominated by men. Products like vibrators and dildos, designed for women, were marketed with imagery that would target straight men instead of a woman. Also, the design of the products was based on what male executives thought women might expect. Now, more women are taking control of their pleasure. They bring a woman's perspective into SexTech companies or create their own ones, such as MysteryVibe's Crescendo.

Innovation in this industry is happening at lightning speed. It won't be long before SexTech will work with multi-haptic systems, AI, and biomimetics that spreads into other industries. In some places, it's already happening. In 2016, Apple filed 38 patents for multi-haptic technologies and biological vital monitoring systems. The same tech that lets you engage with a smart sex toy will work its way into future iterations of the Apple Watch.

It's crucial to recognize needs to serve women better, bringing in gender specificity for devices and solutions that are common to both sexes. It can't be done without both men and women representation in each

industry, but even if the product specifically targets women, it's worth having men behind the scenes.

Inability to experience sexual pleasure can contribute to depression and anxiety, poor self-esteem, or sexual coercion. It can also promote the misconception that pain is a normal and acceptable part of sex for women, according to psychology professor Laurie Mintz, author of "Becoming Clitorate: Why Orgasm Equality Matters and How to Get It".<sup>38</sup>

### **IS SEX A HEALTH ISSUE?**

Is having an orgasm a health issue worthy of innovation? The UN's World Health Organization includes pleasure in its definition of sexual health –for men and women.

There is a disproportion between men and women's sexual pleasure. 87% of husbands and 49% of wives reported consistently experiencing orgasm. 43% of husbands misperceived how often their wives experienced orgasm.

While sexual satisfaction is a health determinant, clinicians should give particular attention to orgasm experiences, to potentially help both men and women have higher sexual satisfaction. This is a vast field for SexTech innovations.

### **SEX-POSITIVE MOVEMENT**

The sex-positive movement is social and philosophical. It seeks to change cultural attitudes and norms around sexuality, promote the recognition of sexuality (in countless forms of expression) as a natural and healthy part of the human experience, and to emphasize the importance of personal sovereignty, safer sex practices, and consensual sex (free from violence or coercion). It covers every aspect of sexual identity, including gender expression, orientation, relationship to the body (body-positivity, nudity, choice), relationship-style choice, reproductive rights, and everything else society has lumped under the umbrella.

## SEX TOY APPS AND DEVICES

As we've written in a nutshell, Osé, a Lora DiCarlo's robotic vibrator, developed in consultation with Oregon State University's robotics department, was initially accepted into the CES show and given an innovation award. Shortly after, it was excluded because it didn't fit into an existing

**15% of Americans use sex toy apps (such as app-controlled vibrators) as well as 12% of Brits and 10% of Australians.**

product category. The device was also called «immoral» and «profane». After a few days of fighting with CES, the device was given back the award. This case was a huge move forward for women's sex toys, bringing them out from the shadows. Also, lo-fi SexTech has always discreetly held a place in the development of products such as warming lubes and lotions.

Women who own their sexual lives are potent consumers. Gender is the most powerful determinant of how we see the world and everything in it. It's more significant than age, income,

ethnicity, or geography. Gender is often a blind spot for businesses, partially because the subject is not typically addressed in most undergraduate or graduate-level business courses, or the workplace itself.

Recent stats show 15% of Americans use sex toy apps (such as app-controlled vibrators) as well as 12% of Brits and 10% of Australians. But experts predict they will become a significant part of all of our sex lives over the coming years. The sexual wellness market accounted for \$39 billion in 2017 and is expected to reach \$123 billion by 2026. Within that, the SexTech industry has been valued at \$30 billion annually and growing at a 30% rate. The term "SexTech" applies to a wide variety of tech-enabled products and solutions, from sex robots to educational apps and platforms, as well as erotic virtual reality and porn.

# Period and work

## PERIOD AS A WEAKNESS IN THE WORKPLACE

Despite efforts, a period is still perceived by society not just as taboo but also as a weakness, especially in the workplace. Mood swings, physical symptoms, and pain are not the most comfortable addition to a fast-paced office life, meetings and required focus. Women still feel like they should hide it and be “normal”, just survive through those days without showing that something is different. What if we try to look at it from a different perspective and benefit from everything that happens during the menstrual cycle? What if the time we spend at work could be much more effective thanks to our hormones and mood swings?



## MEN'S DAILY CYCLES VS. WOMEN'S MONTHLY CYCLES

In most (all?) cases, work life is based on a daily cycle, but a woman's body relies mostly on a monthly cycle, and different phases of this cycle give us different abilities that can be used in daily life and at work. This is the knowledge that used to be obvious to our ancestors but got lost between taboos and trying to pretend that periods do not exist. It was necessary for women to be able to join the workforce and be treated equal and women

Work life is based on a daily cycle, but a woman's body relies mostly on a monthly cycle.

became great at whatever they did despite everything but now we have a chance to unravel this knowledge again - with a tremendous amount of data from period tracking apps. Especially now, with new iOS Health period tracking, this data is just around the corner, available to synchronize with any iOS app.

If you think about it, there are probably days when it's easier to focus and work on tasks that require analytical thinking. There are also days when this kind of work seems daunting and your level of empathy and emotions seem overwhelming. We tend to get irritated by such changes because they don't fit our schedule, but what if they did? What if there is a pattern behind it that is connected to the monthly cycle? Imagine if all women could predict their moods and abilities to enforce them when the time is right and plan their work ahead. Imagine knowing when it's a good day for planning a yearly budget and when it would be better to put their efforts into understanding user tests thanks to the emotional engagement.

## TECHNOLOGY THAT SUPPORTS YOUR CYCLE

Some period tracking apps like Eve by Glow already give users tips about their mood and general well-being based on hormone levels, but those are just ad hoc additional fun facts. We believe that using information about the cycle, with some additional data analysis, presents amazing opportunities. This includes opportunities for products that can change the way we treat our bodies and signals it sends us, and maybe in the end, the way the period and the cycle are perceived, changing a period from a liability to an advantage.



# Precision medicine and personalized medicine

## PRECISION MEDICINE IS AN INDIVIDUAL APPROACH TO EACH PATIENT

Until now, medicines had been produced in the same way for everyone, whether it was a man or a woman, and regardless of age. The phase of the cycle, or the ethnic or racial identity of the person did not matter. Today, thanks to advanced research and tests, it is well known that all these factors have an impact on the effectiveness of medicines because every person reacts in a slightly different way.

Thanks to the advanced development of genetic research in recent decades, it is known that the future will be precision medicine, which will be based on an individual approach to each patient. Targeted drugs will be selected based on genetic tests and the identification of biomarkers.

So far, the obstacles to implementation of large-scale precision medicine are mainly the high costs of executing such programs in health services, especially in low- and middle-income countries.<sup>39</sup>

The potential long-term benefits of implementing precision medicine include:

- wider adoption of collecting patients' genetic and other molecular information as part of routine medical care,
- improved ability to predict which treatments will work best for specific patients,
- better understanding of the underlying mechanisms by which various diseases occur,
- improved approaches to preventing, diagnosing, and treating a wide range of diseases,
- better integration of electronic health records in patient care, which will allow doctors and researchers to access medical data more easily.<sup>40</sup>

## **WHAT'S THE DIFFERENCE BETWEEN PRECISION MEDICINE AND PERSONALIZED MEDICINE?**

The terms “personalized medicine” and “precision medicine” are often used interchangeably. “Personalized medicine” is a much older term that has been widely used over the last three decades. However, in recent years, the term “precision medicine” has been used to describe larger projects with genome sequencing in the United States and China that aim to develop drugs for the genetic characteristics of population subgroups. Some authors defend a more comprehensive approach, which takes into account not only individual genetic information but also other biomarkers and lifestyle (including exercise habits or diet). Additional data sources include family health history and the environment.

Although precision medicine has been talked about for several decades as a useful tool for treating patients, it is only now possible for a few reasons. First of all, we have easily accessible electronic health records, genetic testing, and big data. Also, thanks to more enormous computing powers, researchers can discover new relationships between genes, drugs and populations.

Precision medicine is also connected with prevention and predicting the possibility of disease occurrence. The more available data is collected, the easier it is to find patterns and parallels between genes, lifestyle, family history and disease frequency, for example cancer, heart disease, rheumatism, Alzheimer’s disease or multiple sclerosis.

Silicon Valley is also involved in precision medicine. Bill Gates announced a \$50 million investment in data-driven Alzheimer’s research, while Mark Zuckerberg and his wife Dr. Priscilla Chan have donated a \$10 million donation to the UCSF Institute for Computational Health Sciences to investigate how to best reuse available datasets to produce new insights.<sup>41</sup>

# Fighting taboos

## MENSTRUATION AND MENOPAUSE TABOOS

Taboos related to menstruation and breastfeeding are becoming smaller and smaller thanks to social campaigns but have not disappeared. Menopause is an even bigger taboo subject. The natural state of climacterium is not insignificant - it affects 50% of the population at a particular stage of life.

Taboos related to menstruation not only cause stress connected to talking about one's well-being with family, friends, or acquaintances, but also in places of work or study. Why do women hide hygiene products on the way to the bathroom or are ashamed to admit they feel uncomfortable or angry during their period? Why do women and girls often not show up at work or school during menstruation, which limits their potential to develop?

"Menstruation is a normal biological process and a key sign of reproductive health, yet in many cultures, it is treated as something negative, shameful and dirty".<sup>42</sup> A study from UNICEF revealed that 10% of girls in India believe that menstruation is a disease. Many of them have very little knowledge about what is happening to their bodies.<sup>43</sup>

The lack of open conversations about women's health has undoubtedly contributed to poor outcomes for women. Endometriosis UK finds that on average, it takes 7.5 years to get a formal diagnosis of endometriosis. Endometriosis is a condition that can cause crippling period pains.<sup>44</sup>

Menstruation is a normal biological process and a key sign of reproductive health, yet in many cultures, it is treated as something negative, shameful and dirty.

## PREGNANCY TABOOS

Talking about the complications of getting pregnant is commonly done under cover of shame. Longer-term childless marriages, which have a fertility problem, are unfortunately often judged from the outside by ignorance, lack of knowledge, and consequently, lack of understanding.

Women usually do not talk about their pregnancies at the very beginning. It is a common practice to not talk about the pregnancy to their closest family or friends during the first trimester, not to mention further distant relationships. On the one hand, they are afraid to admit this to their employers because they are afraid of being fired. On the other hand, they are afraid that if they admit to being pregnant first and then have a miscarriage, they will be judged and criticized.

**1 in 6 pregnancies ends in a miscarriage in the first trimester.**

Looking at the first trimester from a medical point of view, it's the most challenging time for a woman physically and emotionally. As many as 1 in 6 pregnancies ends in a miscarriage in the first trimester<sup>45</sup> and this is completely normal. If women do not talk about miscarriages and educate others, we will unfortunately never overcome the taboo associated with them.

## HEALTH AND SEXUALITY EDUCATION TABOOS

Similar taboos apply to health education, including sexuality education, which in turn leads to an increased risk of contracting sexually transmitted diseases, HIV or early and unplanned pregnancies. The stigmatization of people with disabilities, for whom physical limitations do not remove mental needs - sexual intercourse or maternity - is even more critical in this matter. Unfortunately, these problems are ignored and neglected on the market.

Taboos are most often realized through ignorance or a “culture of silence”, which leads to a lack of widely available, and valuable, knowledge and information about the natural processes through which a woman goes, but also the same diseases and the way of dealing with given ailments. For some reason, a visit to the gynecologist is still done in absolute necessity, at the moment of some serious problem, after “home methods” or self-diagnosis on the Internet are over.

Unfortunately, taboos begin in families and continue in school. Talks about the menstruation of girls are not the norm everywhere, so many of them are afraid and don't know what happens to their bodies. They don't treat the period as something natural, a symptom of health, but rather as a disease. From the very beginning they feel a shame connected with this subject. The same is true of sexuality education, where teenagers are afraid of becoming pregnant because a friend touched them on the knee or kissed them.



# Menopause and tech 60+

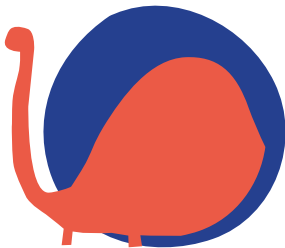
## 1 BILLION OF THE 8 BILLION PEOPLE IN THE WORLD IN 2025 WILL EXPERIENCE MENOPAUSE

We have decided to focus on menopause and technology for women 60+, because in our opinion, it will be a very strong trend in coming years. Let's look at the numbers.

In 2025, there will be 8 billion people living in the world, while women experiencing menopause will number 1 billion, which is 12% of the population.<sup>46</sup> Given that more and more elderly people are using technology every year, this is a great opportunity for companies to develop solutions to address the problems of women with menopause.

These are problems worth solving through technology, and Jill Angelo has noticed: "I believe the menopause market is just waking up. There's been a lot of innovation in pregnancy, fertility, and menstrual health, because its well-defined and not associated with aging. Menopause, on the other hand, is something every woman experiences, and yet, many markets don't speak of it, because it has a stigma associated with aging and non-reproductive years...versus the freedom it brings to women kicking off the second half of life".

**In 2025, there will be 8 billion people living in the world, while women experiencing menopause will number 1 billion, which is 12% of the population.**



## VASOMOTOR SYMPTOMS ARE EXPERIENCED BY 75% OF WOMEN DURING MENOPAUSE

Hot flashes, flushing and night sweats are experienced by 75% of women during menopause. These signs, called vasomotor symptoms, can go on for years and influence, to a large extent, a woman's health and well-being. Along with other conditions linked to menopause, these conditions can lead to reduction of a woman's quality of life, lower productivity (60% work productivity loss), and increased utilization of medical resources (121% higher). "The additional healthcare burden of menopausal women experiencing VMS is approximately \$660 billion globally; the burden on the economy due to productivity losses can total over \$150 billion. The combined total is more than \$810 billion".<sup>47</sup>

It is worth considering the problems of women with menopause in the labour market. As Jill Angelo said: "The workplace is going to wake up in regard to offering more women's health services and applications - even beyond fertility and pregnancy care. 20% of the US workforce (and similar percentages abroad) are women of menopausal age. Retaining those women and making them as productive as possible, will be a competitive advantage for companies who offer support and benefits geared towards this audience".

Hormonal changes associated with menopause are related to other disease conditions, including vaginal dryness and pain, and depression. During menopause, women may also be at higher risk of heart disease, bone loss, early atherosclerosis, heart attack, overall cognitive decline, and dementia.

Regardless of when a woman starts having vasomotor symptoms, knowing they can last for many years (even for 9-10 years) is a reason to seek treatment, in order to enjoy a better quality of life.

**Hot flashes,  
flushing and night  
sweats are  
experienced by  
75% of women  
during menopause.**

## MARKET OPPORTUNITIES

The National Health Service says that the average age for the onset of menopause in the United Kingdom is 51 but one out of 100 women experience menopause in their 30s.<sup>48</sup>

The women approaching menopause at the moment are women from Generation X. They are familiar with smartphones, they use social media platforms, and technology overall in their everyday routine. When Generation X entered the labor market, it came with increased maternal participation in the workforce.

Women in their 40s and 50s often have more freedom because their children are older, and 40 is also a time when they're thriving in their careers and starting new businesses.

Women adopt tech novelties and are keen to make changes in their lifestyle, including exercise, diet, and mental therapy, as they are aware it can reduce the symptoms of menopause, such as VMS, stress, sleep disorders, and others.

Despite everything, 55% of women going through menopause don't do anything at all to treat symptoms.<sup>49</sup> All of this makes the group an addressable market for FemTech companies.

The average age for the onset of menopause in the United Kingdom is 51 but one out of 100 women experience menopause in their 30s.

## MENOPAUSE SOLUTIONS

Telemedicine is one of the most straightforward solutions for women experiencing menopause. The global telehealth market is expected to reach \$19.5 billion by 2025, growing at a rate of 13% from 2017 to 2025. Some telemedicine apps are focusing on



women and menopause. One of them has board-certified, US-licensed physicians review the information and make a personalized treatment recommendation. They also prescribe medication for hot flashes, vaginal dryness, sleep, and loss of eyelashes—both prescription and over-the-counter drugs.<sup>50</sup>

Other solutions for women with menopause include all kinds of everyday devices, such as air conditioners for flushes or wristbands.

Another element of solutions is related to education. Research shows that women do not know precisely what happens to their bodies and how these changes affect their mental state. As a result, they do not know how to deal with the symptoms of menopause so that they can enjoy life to the full.

For women who experience menopause, mindfulness apps will also be useful, teaching meditation, reducing stress, or balancing moods.

**55% of women going through menopause don't do anything at all to treat symptoms.**

# Data for research and developing new therapies

## **STUDY SHOWS 89% OF RESPONDENTS USED A DIGITAL HEALTH TOOL AT LEAST ONCE**

A 2018 Rock Health study found that the adoption of digital health tools was at its highest rate ever – with 89% of respondents using at least one digital health tool. It is important that health apps are developed to comply with security and privacy requirements defined by data protection laws, such as the GDPR in the EU and HIPAA in the US.

Data protection compliance issues arise, such as identifying who is a controller, ensuring transparency, using health data for research purposes, and keeping health data secure. Respondents were most willing to share their personal health data with physicians, health insurance companies, pharmacies, and research institutions – reporting the most trust in data security of these entities.



## **DNA TESTING**

Analyzing and understanding the human genome using an individual's DNA allows customers to understand what health risks they may face in later life or pass on to their children. They may also indicate an increased cancer risk, late-onset Alzheimer's Disease, and other health conditions.

MIT Technology Review estimates more than 26 million people have taken an in-home ancestry test.

In 2017, the DNA companies were researched. Results were all over the map: 40% had either no policy available to consumers on their website, or policies that did not even mention genetic testing or genetic data.

On June 13, 2019, a US Senator introduced legislation to protect private consumer health data – the Protecting Personal Health Data Act. The legislation was prompted by a recent report that showed that current law does not adequately address the emerging privacy concerns presented by new technologies such as DNA testing kits and health data tracking apps.

## **DNA MARKETPLACE**

Active participation of the individuals in managing the sharing and access to their own genomic and health data is in the framework of the current data-sharing models. In response, a new generation of startups is emerging, which proposes leaving data control in the hands of each customer.<sup>51</sup>

DNA data marketplaces propose that people can share their data with companies that are interested in having access to their data for various research leading to product development and receive monetary compensation or incentives.<sup>52</sup>

## **DATA SHARING FOR RESEARCH PURPOSES**

Personal health data is a valuable resource for both public-funded research and for-profit entities in the development of new drugs, treatments, and diagnostic tests. Through access to large datasets, pharmaceutical and biotech companies have developed partnerships with public and private entities such as direct-to-consumer genetic testing companies to buy genomic and health-related databases collected from research participants and customers. Although individuals mainly support data sharing for research purposes, the for-profit nature of such data sharing

raises some questions regarding the rights of the data subjects, and fairness in sharing benefits.

Apple has officially launched its Research app, which iPhone and Apple Watch users can download from the App Store to take part in health studies. Once users have downloaded the app and opted into sharing their information with the studies, their hardware will collect data that will be used to inform a trio of studies.<sup>53</sup>

## **LAW ENFORCEMENT**

Privacy advocates have flagged significant concerns about the use of DNA by law enforcement. Today, most companies have introduced policies that require people to explicitly state if they'll allow their information to be shared with law enforcement, or opt-out.

Due to the sensitive nature of the health industry, compliance regulations should be used as a guide for successful health app development. It is recommended to check related regulatory requirements and best practice principles in the region/s your app will be available.

## **COLLECTING DATA AND MEDICAL HISTORY**

A completely different topic is the collection of data and medical history on one patient in one place. Imagine that no matter which doctor you go to, in which city or country, he or she has access to your entire medical history. In addition, in a unified system, a healthcare practitioner can find not only all of your test results, but also data read from Apple Health or other applications that contain information about your sleep, menstruation, workouts, weather that affects your blood pressure or smog at any given time.

As Maree Beare said: "In early 2017 I realized that one major thing was missing from the healthcare system. I tried to access my health record and the only option I could find was the government consumer portal. At that time, I realized that the eHealth record was only really accessible

for clinicians bureaucrats, and insurance companies, so I set about making it accessible to people, giving them more control over their health information. Imagine a future where no matter where in the world you see a health professional, you will have access to your health data. Wangji's vision is for consumers to be more included in their health journey by empowering them with access to their health data. We know that this change will greatly impact the health industry and people's lives in a positive way. We would like everyone to become their own health Champion, and with that control, to get better diagnosed, to save money and overall just live a better, simpler and healthier life".

**Collecting data from all possible locations could lead to disease prevention, not just treatment.**

Moreover, collecting data from all possible locations could lead to disease prevention, not just treatment, and could help early detection of a hereditary illness thanks to family history medical records.

Of course, at the moment this is not possible due to the lack of such a unified system in which all data would be collected. Who would administer the system? Should the system be domestic or international?

## **Solutions for women and men**

### **SHARED APPLICATIONS AS A WAY OF NEW COMMUNICATION**

We are living in an age of technology, which influences many aspects of our lives, including the way we communicate with family and partners. Applications and solutions for both men and women already exist on the market. However, there is still a lot of untapped space for such projects.

Apps for couples can help deal with various aspects of a relationship – from getting to know each other better, to settling fights and learning to be a better partner.

## **PREGNANCY APPS**

Most of the applications concerning pregnancy are intended for mothers. The market of apps for fathers is much more limited, although they need similar knowledge about pregnancy and babysitting.

Pregnancy apps for men include features like:

- weekly notes about the size of a baby in utero,
- tips for what might be going on with your partner’s pregnancy,
- preparation checklist,
- contraction counter for when the big day finally arrives.<sup>54</sup>

## **FERTILITY TRACKING**

One of the most popular fertility tracking apps was designed only for women who want to get pregnant. Women can add a partner to the app, but the partner only serves as support in tracking her fertility.

Now there is a dedicated app for men to track and troubleshoot their fertility as well. Of all infertility cases, approximately 40–50% are due to the “male factor”. Some health measures the app tracks for men include sperm and emotional health, and fertility.

## **SOCIAL NETWORK APPS**

Social network apps allow you to make phone calls or FaceTime, exchange texts, express your mood and feelings with video, audio, doodles, stickers and even private photos, which you can set to disappear within a certain time.

You can set notifications on a shared calendar and exchange to-do lists. Such an app is an incredibly sexy way to stay constantly connected and to keep all your memories live on a shared timeline, both for couples in long-distance relationships and those living in the same city.

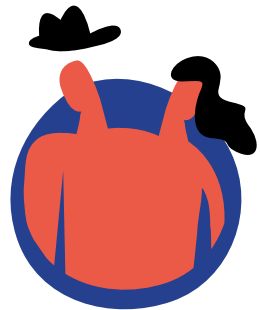
These apps are for long-distance relationships and include the ability to share photos, send private and voice messages, reminders, to count days, and even allows you to feel your significant other's touch when you both touch your screens at the same time.

### **RELATIONSHIP COUNSELLING APP**

Couples often go through rough patches where they struggle to understand each other or fail to meet each other's expectations. A relationship counselling app aims to solve relationship struggles and resolve communication issues.

### **"DO IT YOURSELF" APPS**

The market is booming with SexTech toys. Some of them, for example a smart vibrator, allows your partner to control things from afar (however far your heart or Wi-Fi might roam), and switches off if you haven't been using it for a period of time.

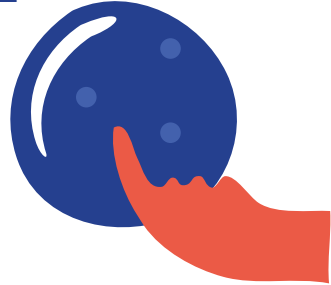






## Chapter 5

# SUMMARY AND ADVICE



## The future of FemTech

This is the ideal moment to enter FemTech, because it's not yet oversaturated and it still has niches where there is little or no competition. At the same time, it is recognizable enough to attract VC's, as they know that FemTech is worth the investment. Further development of the industry is supported by examples of companies such as Elvie, which have been successful on the market and receive huge financing.

We can clearly see that there's still a lot to do in fighting taboos and closing the gap in access to medical care and knowledge. The path is already there and you can use the tracks that have already been laid. As Reenita Das says: "At least the next three decades will be marked by women. Thanks to the solutions available on the market and increasing their awareness, their way of taking care of their health will change".

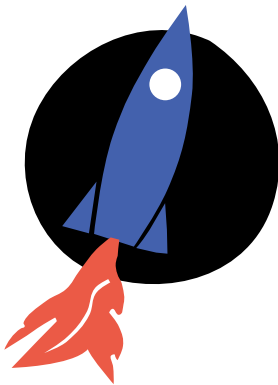
**At least the next three decades will be marked by women.**

## Which segments of the FemTech industry will be on top?

Even though most of FemTech's existence has focused on menstruation and fertility, it is now starting to move towards less comfortable topics, which are still taboo. We foresee more and more solutions for women with menopause and for sexual health that are not only focused on treating illnesses but also on giving women pleasure.

The most important thing is to make them understand through education that as Terence wrote, "I am human, and I think nothing human (=female) is alien to me", nor should it be a cause for shame. This not only concerns disease, menstruation, and menopause but also separate health and sexual needs.

Another necessary field for development is research on women. Still, most data, diagnoses or medicines are based on male tests, even though women react differently to some treatments or drugs, especially at different stages of the cycle. We know that many diseases manifest themselves in slightly different ways in women and men. Such a data gap is very harmful to women, often with fatal consequences.



## Entrepreneurship

An open mind, the right approach, and the right team to build a product is always the right way to succeed, not only in FemTech. So, is it really that easy to create successful products? The bitter truth is... it's not. Being an entrepreneur, especially in a market where it is necessary to create demand and develop innovative solutions, is difficult.

It takes a great deal of determination and faith in the product or service you create to survive. Stress can be minimized by thorough market research and a well-prepared business plan.

## Disclaimer

While creating this publication, we were driven by the idea of the fullest possible representation of the current state of FemTech. We have tried to use the most up-to-date and reliable data, mainly from the United States and the United Kingdom. We have also struggled to present as objective an opinion as possible, but we know that this is not achievable.

"The State of FemTech" was created by women for women who face challenges in FemTech. We did not write from the perspective of market analysts but from the viewpoint of practitioners creating products for over 12 years, mainly in digital health and FemTech.

In the end, we made this publication because we hope to see a world where nobody asks if women are good founders, developers or a good target group to create tech products for.

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# Footnotes

- 1 *Femtech—Time for a Digital Revolution in the Women’s Health Market*, <https://ww2.frost.com/frost-perspectives/femtechttime-digital-revolution-womens-health-market/> (December 18, 2019).
- 2 Mimi Billing, *The queen of femtech’s five favourite startups*, <https://sifted.eu/articles/clue-founders-five-favourite-startups/> (December 18, 2019).
- 3 Olivia Goldhill, *“FemTech” is not and should not be a thing*, <https://qz.com/1586815/why-femtech-is-a-sexist-category/> (December 18, 2019).
- 4 *Femtech by the Numbers: The Rise of Innovation in Women’s Health Technology*, <https://www.hitlab.org/blog/femtech-by-the-numbers> (December 18, 2019).
- 5 Ibidem.
- 6 Ibidem.
- 7 Ibidem.
- 8 Ibidem.
- 9 Gene Marks, *‘Femtech’ startups on the rise as investors scent profits in women’s health*, <https://www.theguardian.com/business/2019/jun/06/femtech-startups-womens-health-investors> (December 18, 2019).
- 10 Simon Sinek, *How great leaders inspire action*, [https://www.ted.com/talks/simon\\_sinek\\_how\\_great\\_leaders\\_inspire\\_action](https://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action) (December 18, 2019).
- 11 Ben Ratner, *3 Key Marketing Takeaways from Simon Sinek’s “Start With Why”*, <https://blog.hubspot.com/customers/3-takeaways-from-start-with-why> (December 18, 2019).

- 12 *Women in Labor History Timeline*,  
[https://www.afscme.org/for-members/womens-leadership-training/leadership-tools/body/Women\\_in\\_Labor\\_History\\_Timeline.pdf](https://www.afscme.org/for-members/womens-leadership-training/leadership-tools/body/Women_in_Labor_History_Timeline.pdf)  
 (December 18, 2019).
- 13 Andrea Stojanović, *Ladies who Lead – 35+ Amazing Women in Business Statistics*,  
<https://www.smallbizgenius.net/by-the-numbers/women-in-business-statistics/>  
 (December 18, 2019).
- 14 Marie-Philippe Gill, *Communities for Women In Tech*,  
<https://girlknowstech.com/women-in-tech-communities/>  
 (December 18, 2019).
- 15 Andrea Stojanović, *Ladies who Lead – 35+ Amazing Women in Business Statistics*,  
<https://www.smallbizgenius.net/by-the-numbers/women-in-business-statistics/>  
 (December 18, 2019).
- 16 Rina Raphael, *Breast-pump maker Elvie raises \$42 million in biggest femtech investment yet*,  
<https://www.fastcompany.com/90328744/breast-pump-maker-elvie-raises-42-million-in-biggest-femtech-investment-yet>  
 (December 18, 2019).
- 17 Victoria Waldersee, *One in seven women don't know what happens during their period*,  
<https://yougov.co.uk/topics/health/articles-reports/2019/03/11/lot-brits-dont-realise-pregnancy-possible-right-du> (December 18, 2019).
- 18 *British Menopause Society Fact Sheet*,  
<https://thebms.org.uk/wp-content/uploads/2016/04/BMS-NationalSurvey-MARCH2017.pdf>  
 (December 18, 2019).
- 19 Aisha Hassan, *Menopausal women aren't being supported at work—and it's affecting companies' bottom line*,  
<https://qz.com/1576313/menopausal-women-arent-being-supported-at-work/>  
 (December 18, 2019).
- 20 *Why sexuality education is important*,  
<https://health.tki.org.nz/Teaching-in-HPE/Policy-guidelines/Sexuality-education-a-guide-for-principals-boards-of-trustees-and-teachers/Why-sexuality-education-is-important>  
 (December 18, 2019).
- 21 Lynae M. Brayboy, Katryna McCoy, Sneha Thamocharan, Emily Zhu, Gabriela Gil, Christopher Houck, *The use of technology in the sexual health education especially among minority adolescent girls in the United States*,  
<https://fertility.womenandinfants.org/app/uploads/2018-10-Brayboy-The-use-of-tech-in-sex-health-edu-PMID-3015129.pdf>  
 (December 18, 2019).

- 22 Jackie Rotman, *Vaginas Deserve Giant Ads, Too*,  
<https://www.nytimes.com/2019/06/25/opinion/women-sex-toys-advertisements.html>  
(December 18, 2019).
- 23 Suzannah Weiss, *Sexual Health Companies Confront Business Obstacles From Social Media Advertising Bans*,  
<https://www.beautyindependent.com/sexual-health-companies-social-media-advertising-bans/>  
(December 18, 2019).
- 24 Ibidem.
- 25 *Elvie. Free The Feed*,  
<https://motherlondon.com/work/elvie-free-the-feed/>
- 26 <https://www.cnet.com/news/sex-toys-will-show-up-as-ces-after-vibrator-award-scandal/>  
(December 18, 2019).
- 27 Kayla Gross, *9 in 10 Millennials would switch brands to one associated with a cause, survey finds*,  
<https://medium.com/@kaylamgross/9-in-10-millennials-would-switch-brands-to-one-associated-with-a-cause-survey-finds-dcf4f12929b3>  
(December 18, 2019).
- 28 *Ban on harmful gender stereotypes in ads comes into force*,  
<https://www.asa.org.uk/news/ban-on-harmful-gender-stereotypes-in-ads-comes-into-force.html?fbclid=IwAR208ssdEt5iIjRqTpGwRpXDUzFy569zZgWVSoGmU00JSH6McbVlIdiOPdM>  
(December 18, 2019).
- 29 B erence Magistretti, *Frost & Sullivan: Femtech could become a \$50 billion market by 2025*,  
<https://venturebeat.com/2018/03/08/frost-sullivan-femtech-could-become-a-50-billion-market-by-2025/>  
(December 18, 2019).
- 30 *What are Common Problems with the Pelvis?*,  
<https://intermountainhealthcare.org/services/womens-health/general-womens-health/pelvic-care/>  
(December 18, 2019).
- 31 *Can Digital Devices Help Exercise Your Pelvic Floor?*,  
<https://www.cedars-sinai.org/blog/can-digital-devices-help-exercise-your-pelvic-floor.html>  
(December 18, 2019).
- 32 *Evaluation of Smartphone Menstrual Cycle Tracking Applications Using an Adapted APPLICATIONS Scoring System*,  
<https://www.ncbi.nlm.nih.gov/pubmed/27159760>  
(December 18, 2019).

- 33 *Breast Pumps Market Size, Share & Trends Analysis Report By Product (Open, Closed), By Application (Personal Use, Hospital Grade), By Technology (Manual, Battery Powered, Electric), And Segment Forecasts, 2019 – 2026*,  
<https://www.grandviewresearch.com/industry-analysis/breast-pumps-market>  
(December 18, 2019).
- 34 Rina Raphael, *Here's why we need way more women in healthcare leadership*,  
<https://www.fastcompany.com/90291711/heres-why-we-need-way-more-women-in-healthcare-leadership>  
(December 18, 2019).
- 35 *Health and fitness app usage "grew 330% in just 3 years"*,  
<http://www.netimperative.com/2017/09/health-fitness-app-usage-grew-330-just-3-years/>  
(December 18, 2019).
- 36 *Results from the 2017 National Survey on Drug Use and Health: Detailed Tables*,  
<https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHDetailed-Tabs2017/NSDUHDetailedTabs2017.pdf>  
(December 18, 2019).
- 37 Jessica Truschel, *Top 25 Mental Health Apps: An Effective Alternative for When You Can't Afford Therapy?*,  
<https://www.psychom.net/25-best-mental-health-apps>  
(December 18, 2019).
- 38 Dr. Laurie Mintz, *Becoming Cliterate*,  
<https://www.drlauriemintz.com/becoming-cliterate>  
(December 18, 2019).
- 39 Jorge Alberto Bernstein Iriart, *Precision medicine/personalized medicine: a critical analysis of movements in the transformation of biomedicine in the early 21st century*,  
[https://pdfs.semanticscholar.org/a2c0/c466249e9e4ae787778fccea527ce33e6667.pdf?\\_ga=2.206935697.341054652.1575299536-905547838.1575299536](https://pdfs.semanticscholar.org/a2c0/c466249e9e4ae787778fccea527ce33e6667.pdf?_ga=2.206935697.341054652.1575299536-905547838.1575299536)  
(December 18, 2019).
- 40 *What are some potential benefits of precision medicine and the Precision Medicine Initiative?*,  
<https://ghr.nlm.nih.gov/primer/precisionmedicine/potentialbenefits>  
(December 18, 2019).
- 41 Jennifer Bresnick, *What Are Precision Medicine and Personalized Medicine?*,  
<https://healthitanalytics.com/features/what-are-precision-medicine-and-personalized-medicine>  
(December 18, 2019).



- 42 *Menstrual Hygiene Management of Adolescent School Girls and Nuns*, <https://www.unicef.org/bhutan/media/211/file>  
(December 18, 2019).
- 43 Ibidem.
- 44 Emma Cox, *It takes an average 7.5 years to get a diagnosis of endometriosis – it shouldn't*,  
[https://www.endometriosis-uk.org/sites/default/files/files/EndometriosisUKAwarenessMonth2017Press\\_release.pdf](https://www.endometriosis-uk.org/sites/default/files/files/EndometriosisUKAwarenessMonth2017Press_release.pdf)  
(December 18, 2019).
- 45 Louise Hull, Dee McCormack, *Miscarriages affect 1 in 6 pregnancies. We need better investigations and treatments*,  
<http://theconversation.com/miscarriages-affect-1-in-6-pregnancies-we-need-better-investigations-and-treatments-120672>
- 46 Reenita Das, *Menopause Unveils Itself As The Next Big Opportunity In Femtech*,  
<https://www.forbes.com/sites/reenitadas/2019/07/24/menopause-unveils-itself-as-the-next-big-opportunity-in-femtech/#3363ca366535>  
(December 18, 2019).
- 47 Ibidem.
- 48 *Overview. Menopause*,  
<https://www.nhs.uk/conditions/menopause/>  
(December 18, 2019).
- 49 *Menopause. Also called: Change of life*,  
<https://medlineplus.gov/menopause.html>  
(December 18, 2019).
- 50 Heather Landi, *Report: Telehealth Market Estimated to Reach \$19.5B by 2025*,  
<https://www.hcinnovationgroup.com/clinical-it/news/13030029/report-telehealth-market-estimated-to-reach-195b-by-2025>  
(December 18, 2019).
- 51 Eman Ahmen, Mahsa Shabani, *DNA Data Marketplace: An Analysis of the Ethical Concerns Regarding the Participation of the Individuals*,  
<https://www.frontiersin.org/articles/10.3389/fgene.2019.01107/full#B35>  
(December 18, 2019).
- 52 Ibidem.
- 53 Semonti Stephens, *Apple launches three innovative studies today in the new Research app*,  
<https://www.apple.com/newsroom/2019/11/apple-launches-three-innovative-studies-today-in-the-new-research-app/>  
(December 18, 2019).
- 54 Jennifer Karner, *The 5 Best Pregnancy Apps for Dads in 2019*,  
<https://www.lifewire.com/pregnancy-apps-for-dad-4684469>  
(December 2019).

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UNTITLED KINGDOM