



ДМИТРИЙ ЧЕЛОВЬЯН

CEO Vizard Team



МОЙ ОПЫТ

5 лет работы в
сфере VR и AR

8 лет опыта в маркетинге и
управлении бизнесом

Первый

Клуб виртуальной
реальности SINTEZ

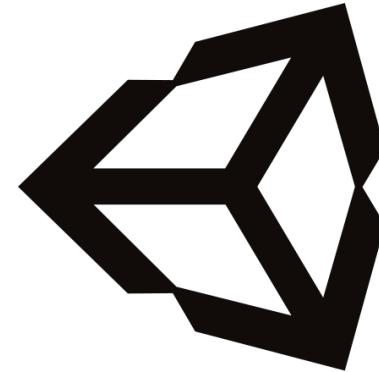
Крупнейший

Арендодатель VR и AR
оборудования SINTEZ Event

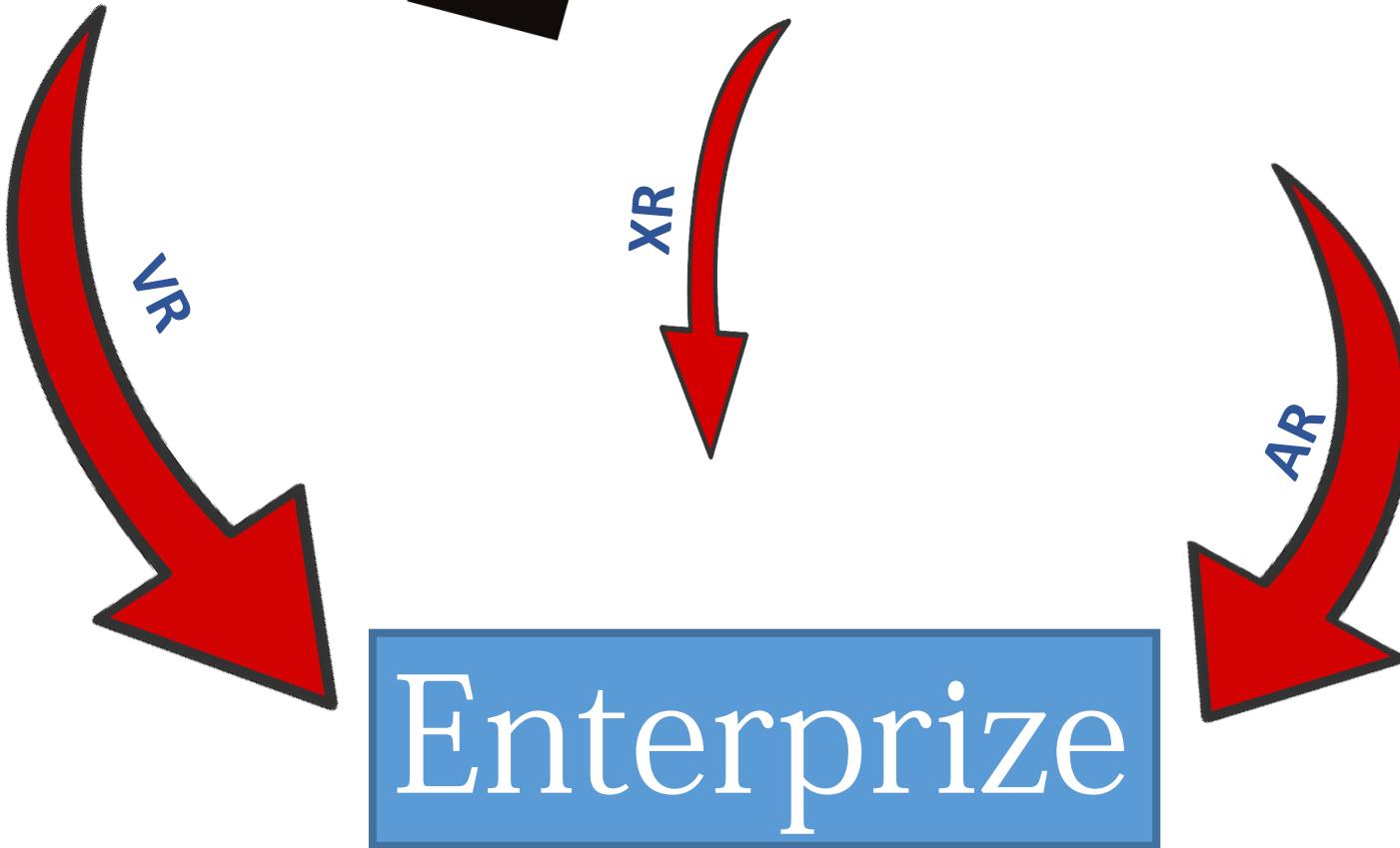
18 Реализованных VR и AR проектов по
разработке в студии

Почему VR полезен

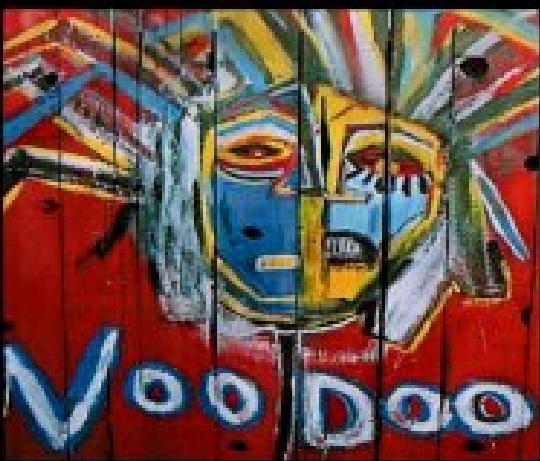




unity



INDIE GAME DEVELOPER



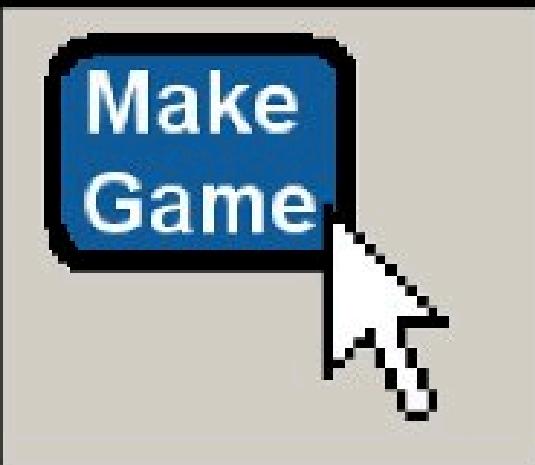
What my friends think I do



What my mom thinks I do



What society thinks I do



What the players think I do



What I think I do



What I really do

Scene View

The Scene View displays a 3D environment of a room with wooden floors and walls. A large glass display case in the center contains several green plants. Sunlight streams in through a skylight in the ceiling, casting bright rays onto the floor and walls. The camera is positioned in the room, looking towards the display case.

Hierarchy

- SampleScene*
 - Lighting
 - Directional Light Sun
 - Volumes
 - Reflection Probes
 - Shadow Proxies
 - Density Volumes
 - Density Volume Tree Cage
 - Light Probe Group
 - Props
 - Room 1
 - Room 2
 - Room 3
 - Structure
 - Decals
 - Room 1
 - SR_CurveWall_01
 - SR_Pillar_03
 - SR_SectionWall_01
 - SR_SectionFloor_01
 - SR_SectionCeiling_01
 - SR_Pillar_02
 - SR_Pillar_01
 - SR_Wall_01
 - FS_Aisle_01
 - Room 2
 - SR_CurveWall_01
 - SR_Pillar_03
 - SR_SectionWall_01
 - SR_SectionFloor_01
 - SR_SectionCeiling_01
 - SR_Pillar_02
 - SR_Pillar_01
 - SR_Wall_01
 - FS_Aisle_01
 - Room 3
 - VFX
 - PlayerControllerFPS
 - Media

Inspector

Selected Object: Directional Light Sun

Tag	Untagged	Layer	Not in Reflection
Transform	Position X: 0 Y: 10.02 Z: 0 Rotation X: 72.021 Y: 328.463 Z: 210.952 Scale X: 1 Y: 1 Z: 1		
Light	General Type: Directional Mode: Mixed Light Layer: Mixed...		
Shape	Angular Diameter: 0.53 Celestial Body: Affect Physically Based Sky checked Flare Size: 48 Flare Falloff: 8 Flare Tint: Surface Texture: None (Texture 2D) Surface Tint: Distance: 1.5e+08		
Emission	Color Temperature: 5500 Lux: 100000 Filter: 1 Temperature: 1 Intensity: 1 Indirect Multiplier: 1 Cookie: None (Texture) Affect Diffuse checked Affect Specular checked Intensity Multiplier: 1		
Volumetrics	Enable checked Multiplier: 1 Shadow Dimmer: 1		
Shadows	Shadow Map: Every Frame checked Resolution: Ultra 4096 (HDRP High Quality) Shadowmask Mode: Slope-Scale Depth Bias: 0.5 Normal Bias: 0.75 Dimmer: 1 Tint: Penumbra Tint: Link Light Layer: Light Layer: Mixed...		
High Quality Settings	Blocker Sample Count: 8 Filter Sample Count: 48 Minimum Blur Intensity: 0.01 Angular Diameter Scale for Softness: 1		
Contact Shadows	Enable: Custom checked		

Light Explorer

Lights

Enabled	Name	Type	Mode	Range	Color	Use Color Temperature	Color Temperature	Intensity	Unit	Indirect Multiplier	Shadows	Contact Shadows
✓	Directional Light Sun	Directional	Mixed	10	[Color]	✓	5500	100000	Lux	1	✓	✓
✓	Light_Spot_1600lm	Spot	Mixed	8	[Color]	✓	3500	1600	Lumen	1	✓	✓
✓	Light_Spot_1600lm	Spot	Mixed	8	[Color]	✓	3500	1600	Lumen	1	✓	✓
✓	Light_Spot_1600lm	Spot	Mixed	8	[Color]	✓	3500	1600	Lumen	1	✓	✓
✓	Light_Spot_1600lm	Spot	Mixed	8	[Color]	✓	3500	1600	Lumen	1	✓	✓
✓	Light_Spot_1600lm	Spot	Mixed	8	[Color]	✓	3500	1600	Lumen	1	✓	✓
✓	Light_Spot_1600lm	Spot	Mixed	8	[Color]	✓	3500	1600	Lumen	1	✓	✓
✓	Light_Spot_1600lm	Spot	Mixed	8	[Color]	✓	3500	1600	Lumen	1	✓	✓
✓	Light_Spot_1600lm	Spot	Mixed	8	[Color]	✓	3500	1600	Lumen	1	✓	✓
✓	Light_Spot_1600lm	Spot	Mixed	8	[Color]	✓	3500	1600	Lumen	1	✓	✓
✓	Light_Spot_1600lm	Spot	Mixed	8	[Color]	✓	3500	1600	Lumen	1	✓	✓
✓	Light_Spot_1200lm	Spot	Mixed	8	[Color]	✓	2800	1200	Lumen	2	✓	✓
✓	Light_Spot_1200lm	Spot	Mixed	8	[Color]	✓	2800	1200	Lumen	2	✓	✓
✓	Light_Spot_800lm	Spot	Mixed	6	[Color]	✓	4000	800	Lumen	1	✓	✓
✓	Light_Spot_800lm	Spot	Mixed	6	[Color]	✓	4000	800	Lumen	1	✓	✓
✓	Light_Spot_800lm	Spot	Mixed	6	[Color]	✓	4000	800	Lumen	1	✓	✓
✓	Light_Spot_3200lm	Spot	Mixed	6	[Color]	✓	4000	3200	Lumen	1	✓	✓
✓	Light_Spot_3200lm	Spot	Mixed	6	[Color]	✓	4000	3200	Lumen	1	✓	✓
✓	Light_Spot_3200lm	Spot	Mixed	6	[Color]	✓	4000	3200	Lumen	1	✓	✓

04

Где сегодня применяется VR и AR?

VR Тренажёры

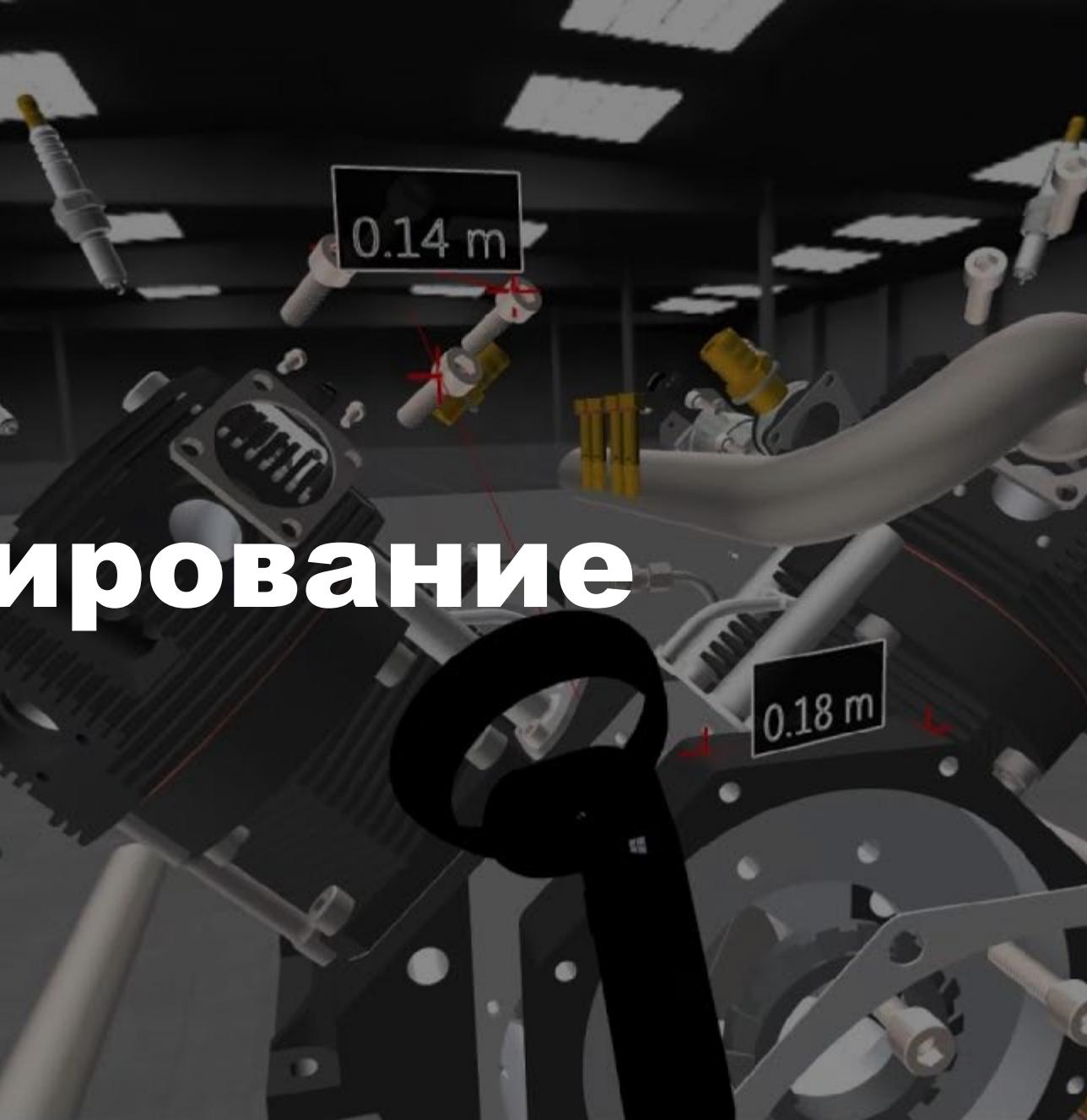
Диалоговые симуляторы

Thanks for coming in. I wanted to do a quick debrief about today's staff meeting.

Glad you could make it. How are things?

Do you know why you're here?

Courtesy of Talespin



A close-up photograph of a man with a shaved head and a beard, smiling broadly. He is wearing a dark-colored hoodie. The background is blurred.

**I PUT A PROGRAMMING ENVIRONMENT
IN YOUR GAME ENGINE**

**SO YOU CAN PROGRAM PROGRAMS
WHILE YOU PROGRAM PROGRAMS**

A photograph of a young boy with curly hair, wearing a red t-shirt and a grey vest, sitting in a black wheelchair. He is wearing a white VR headset labeled "XPERIENCE". A woman with curly hair, wearing a grey top and red pants, is kneeling beside him, assisting him with the VR headset. The background shows a room with a computer monitor on a desk and a blue wall.

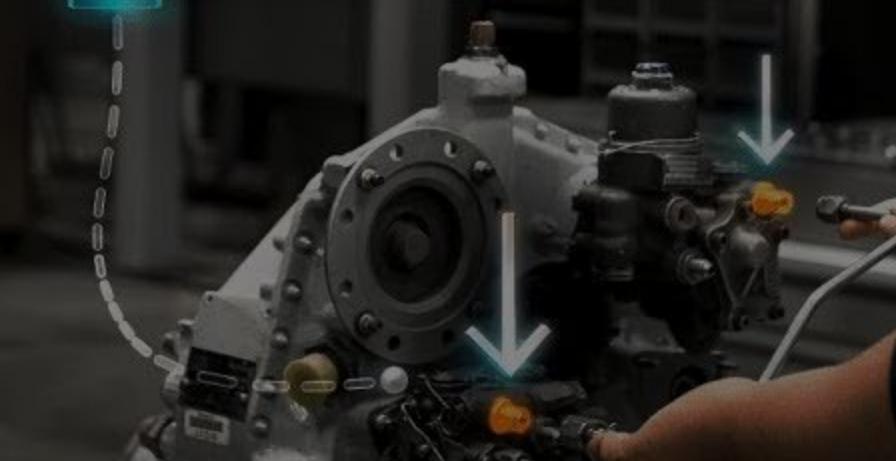
VR в медицине

A woman wearing a VR headset and a man in a VR room.

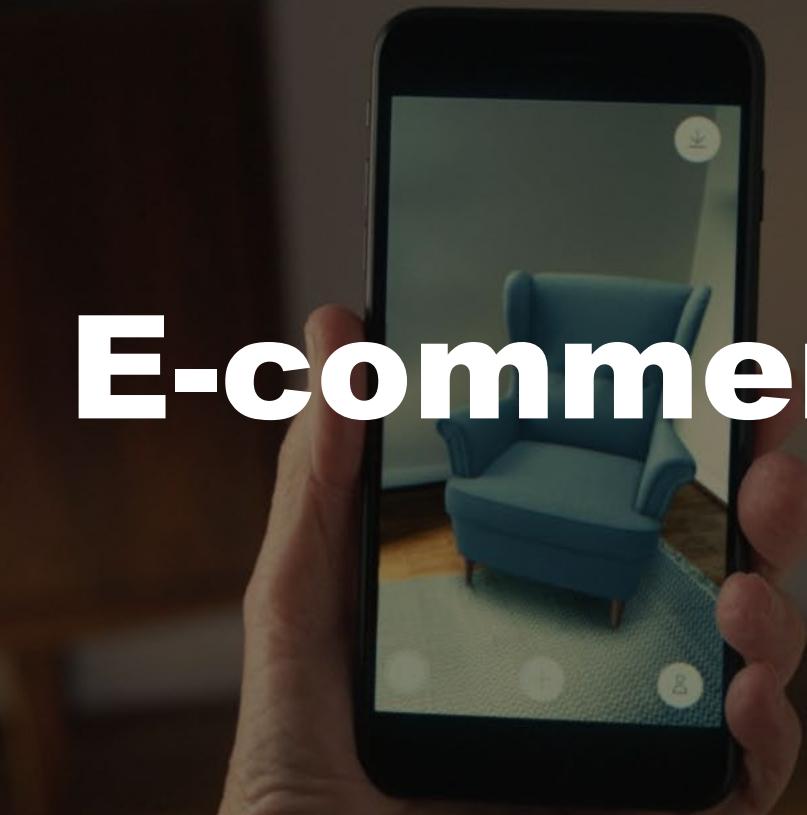
VR healthcare



Дополненная реальность



E-commerce



VR collaboration

Federico U.
Secondo

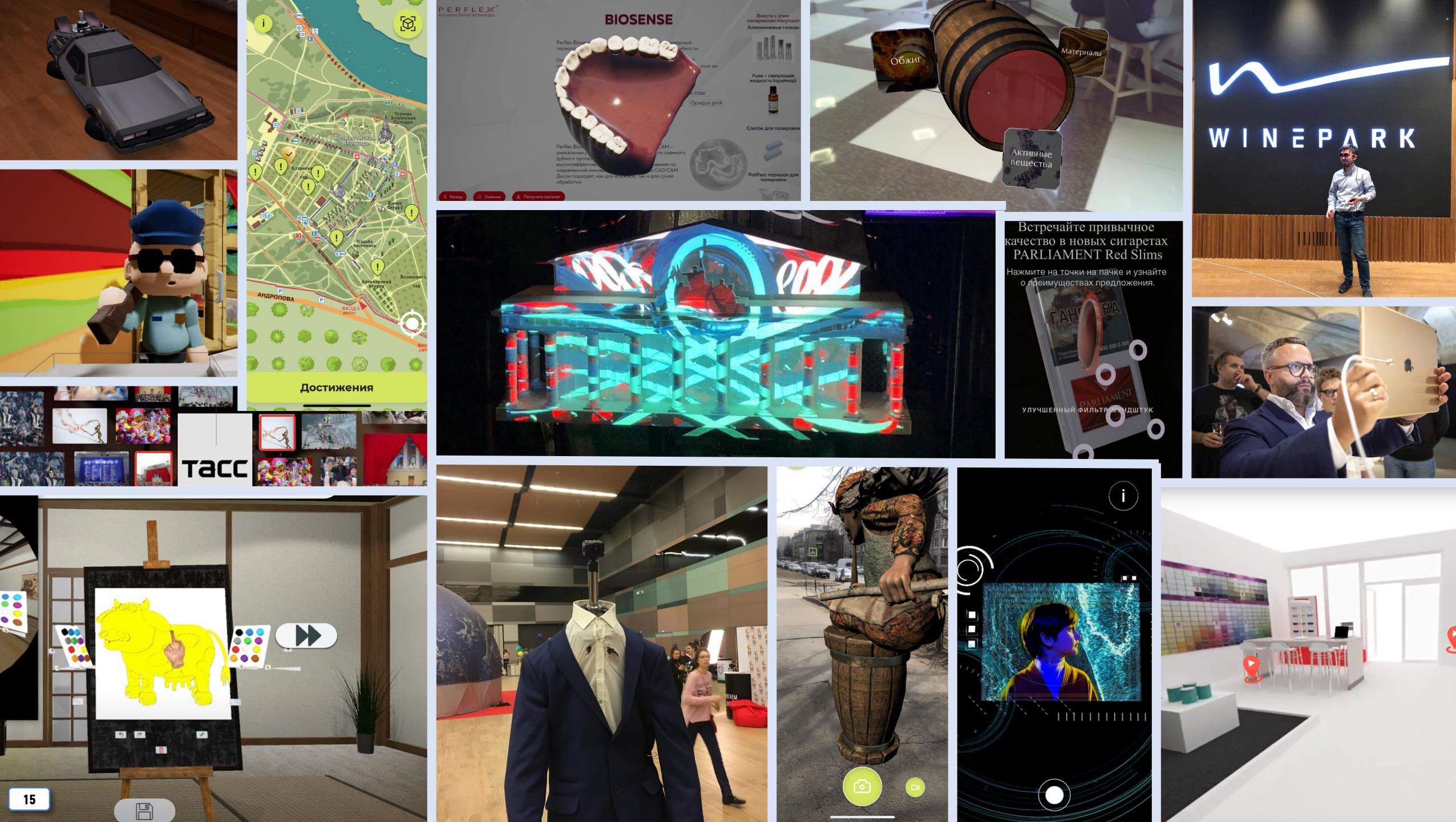
Paul Shilling

Michele Fuhs

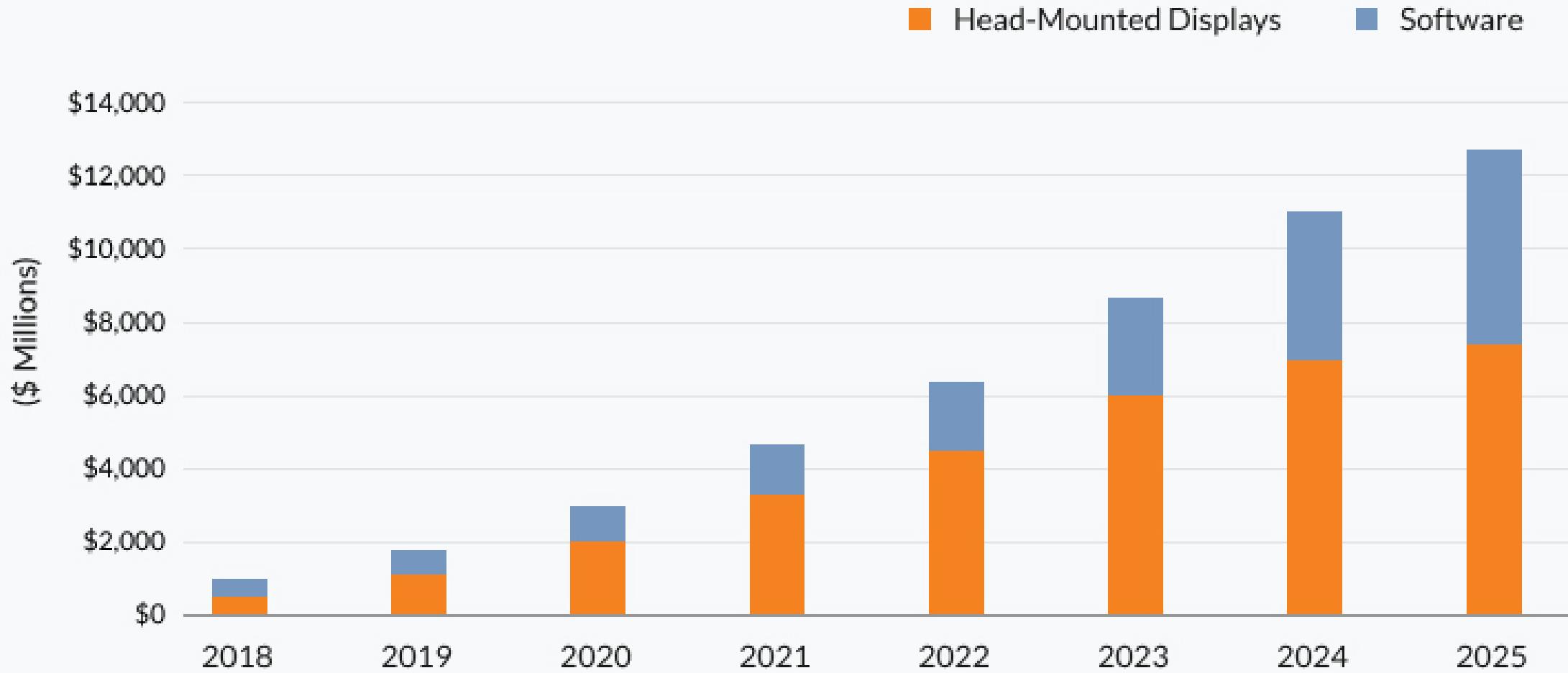
Agents | 3rd Party

INDIRECT SALES

Online Sales



Какие прогнозы?



Source: Virtual Reality for Enterprise and Industrial Markets by Tractica

Какие прогнозы?

Gartner's «Hype cycle»



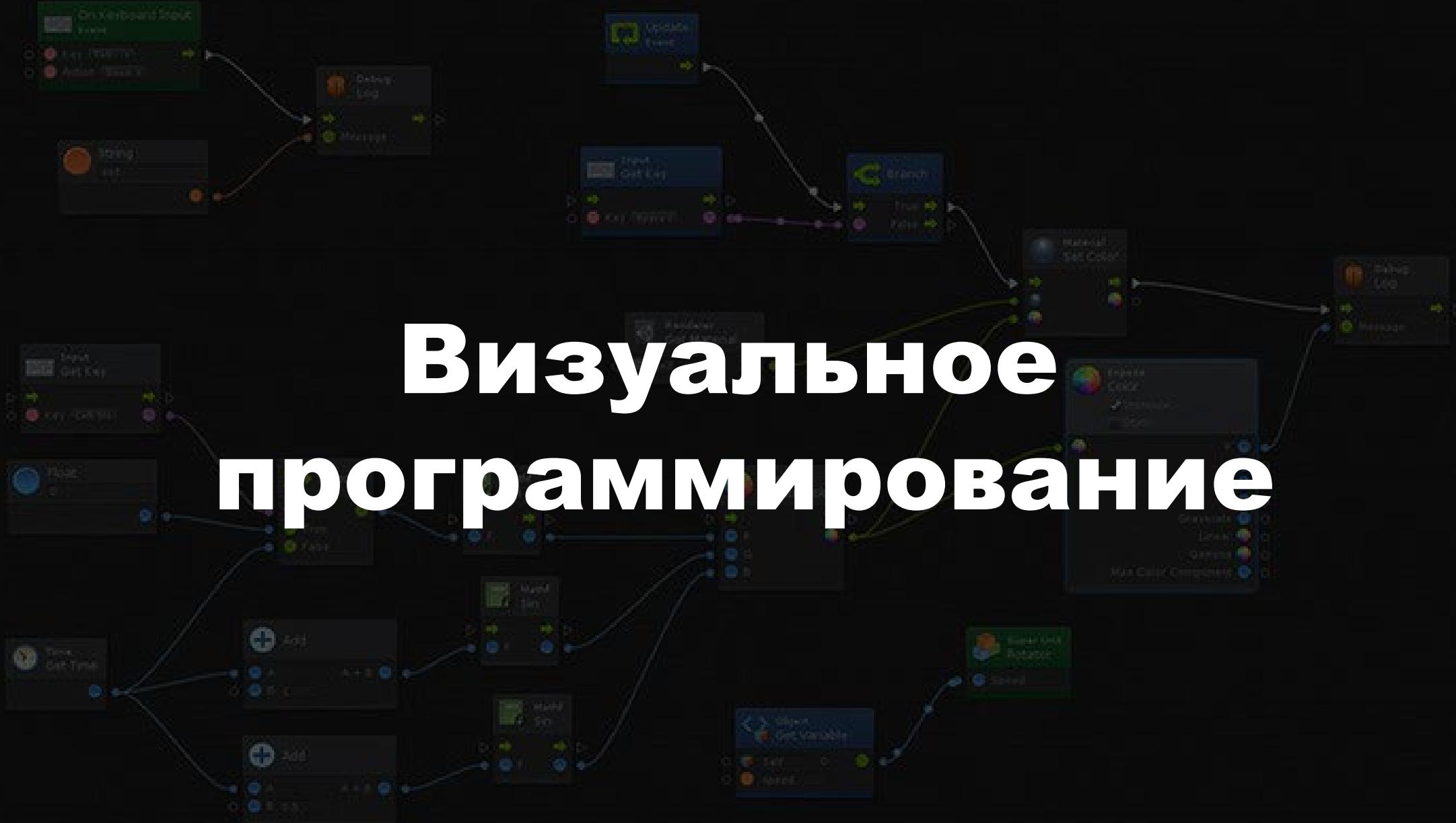
Почему Unity?

- Обширное комьюнити
- C# как понятный и простой инструмент для скриптов
- Лёгкость прототипирования
- Простое средство работы с графикой с глубокими возможностями (Scriptable Render Pipeline)
- Широкая поддержка VR и AR устройств

ML Агенты



Визуальное программирование

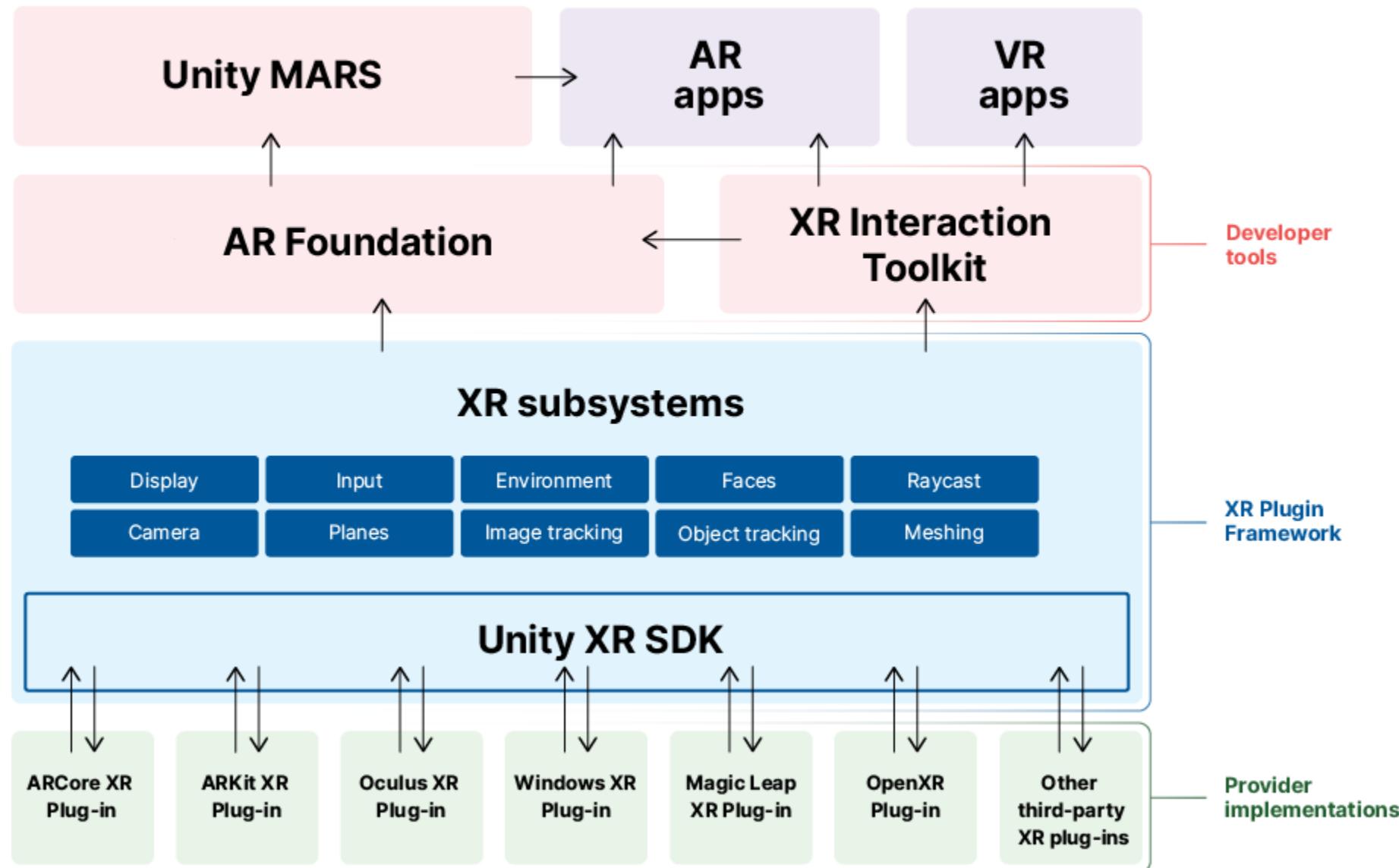


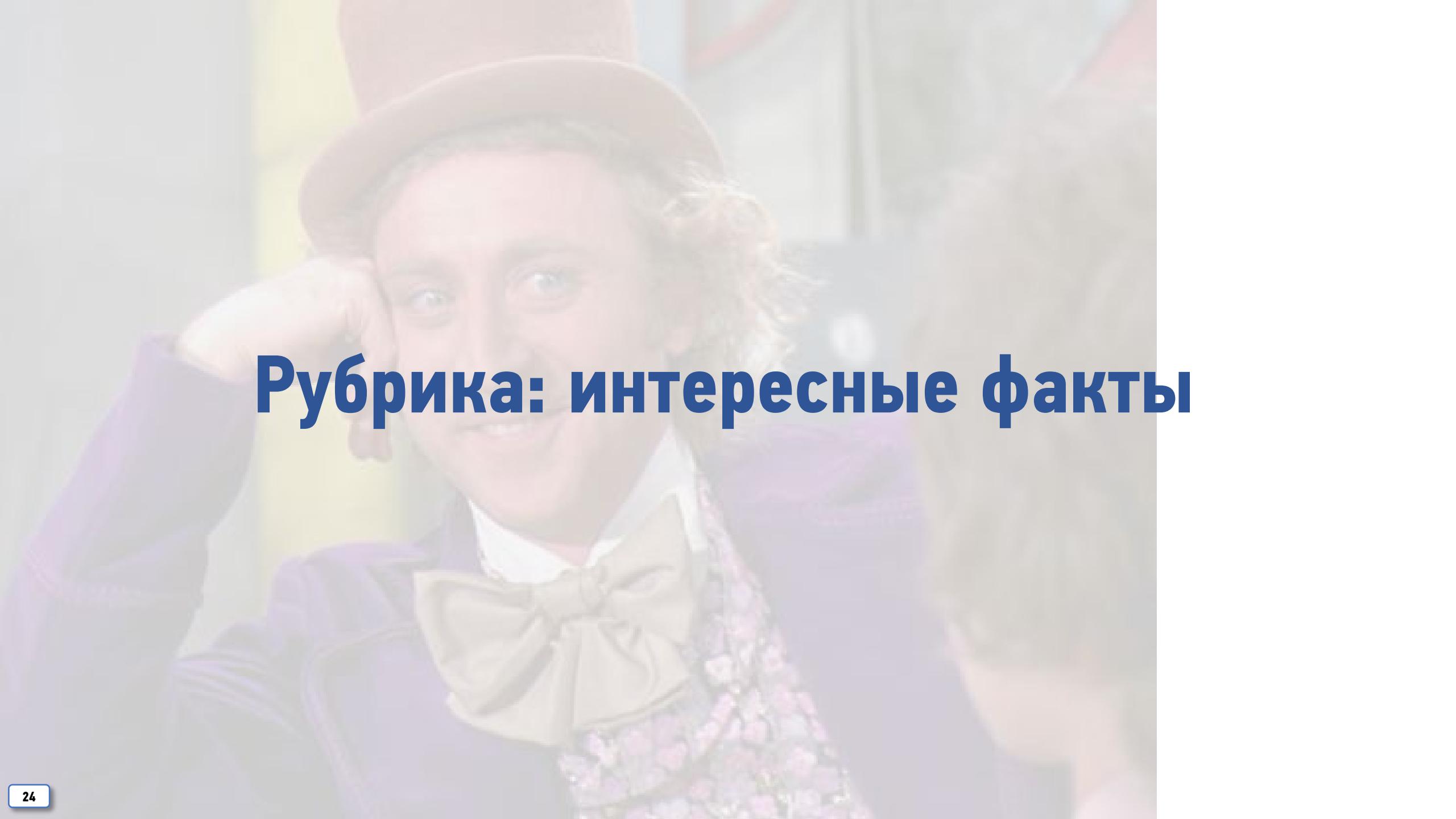
Низкий порог входа

- Бесплатный
- Интегрирован с Asset Store
- Обширное комьюнити и код база
- Обучающие материалы по работе с движком
- Кроссплатформенность



Unity XR Tech Stack



A faded, sepia-toned portrait of a man with long, wavy hair and a mustache. He is wearing a dark top hat and a light-colored bow tie over a patterned jacket. He is looking directly at the viewer with a slight smile.

Рубрика: интересные факты

HOLOLENS ACTUAL FOV



AR и ограниченное поле зрения



30°
HOLOLENS 1

52°
HOLOLENS 2

IMAGES SIMULATED

Цены на AR очки

AR glasses	FOV	Country	Release year	Price*	Buy
Epson MOVERIO BT-300	23°	Japan	2016	\$699	See offer
Eversight Raptor	-	Israel	2018	\$649	
Google Glass Enterprise Edition	-	US	2017	\$1,800	
Kopin SOLOS	10.68°	US	2016	\$499	
Toshiba dynaEdge AR100 Viewer	-	Japan	2018	\$1,899	
Vuzix Blade Smart Glasses	-	US	2018	\$799	See offer
ThirdEye Gen X2	42°	US	2019	\$1,950	
Vuzix M300	20°	US	2016	\$999	

С VR очками всё проще.

**90% случаев.
300 \$**



Oculus Quest 2

**10% случаев (b2b).
1700 \$**



HTC Vive Pro

Инсайд. Мнение.

**Первое поколение настоящего AR на самом
будет за гибридом VR с камерами**



Lynx R-1

Реальные
UseCases

Игровые
механики

DESIGNER+DEVELOPER



YOU ARE A UNICORN



ДМИТРИЙ ЧЕЛОВЬЯН

CEO Vizard Team



@chelovru



/dmitriy.chelovskyan.7



/chelov



/dimachelovskyan

Полезные ссылки на обучающие материалы

Максим Крюков – хороший блог по программированию на Unity и в целом

https://www.youtube.com/channel/UCCrLQKMTF_FwOeDgTUuOksw/videos

Unity оф курс с 0 до джуна

<https://learn.unity.com/pathway/junior-programmer>

Книга Unity в действии

https://vk.com/wall-51126445_11047

Касаемо оф сайта Unity - если полный 0, то смотреть стоит.

Нужно понимать, что некоторым вещам они там учат неправильно с точки зрения реализации и архитектуры. Им важнее донести сам принцип работы, чем правильность его использования