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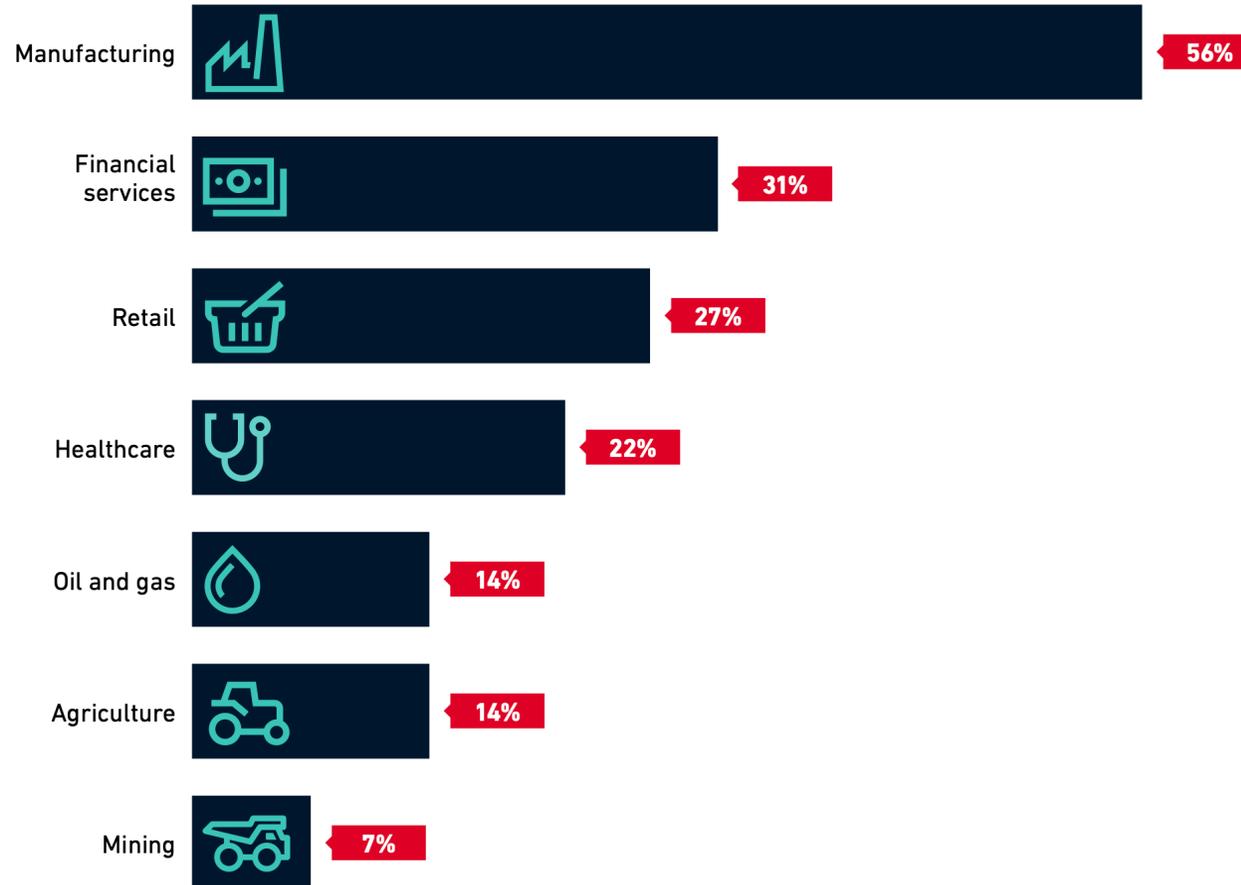
Bundle Branch & Bound

June 2022

Which sectors do telecoms operators see as the largest revenue drivers for services beyond connectivity over the next five years?

Sector	Percentage
Manufacturing	56%
Financial services	31%
Retail	27%
Healthcare	22%
Oil and gas	14%
Agriculture	14%
Mining	7%

Scores reflect where a given sector was ranked 1st or 2nd in revenue potential by operators (n=100).
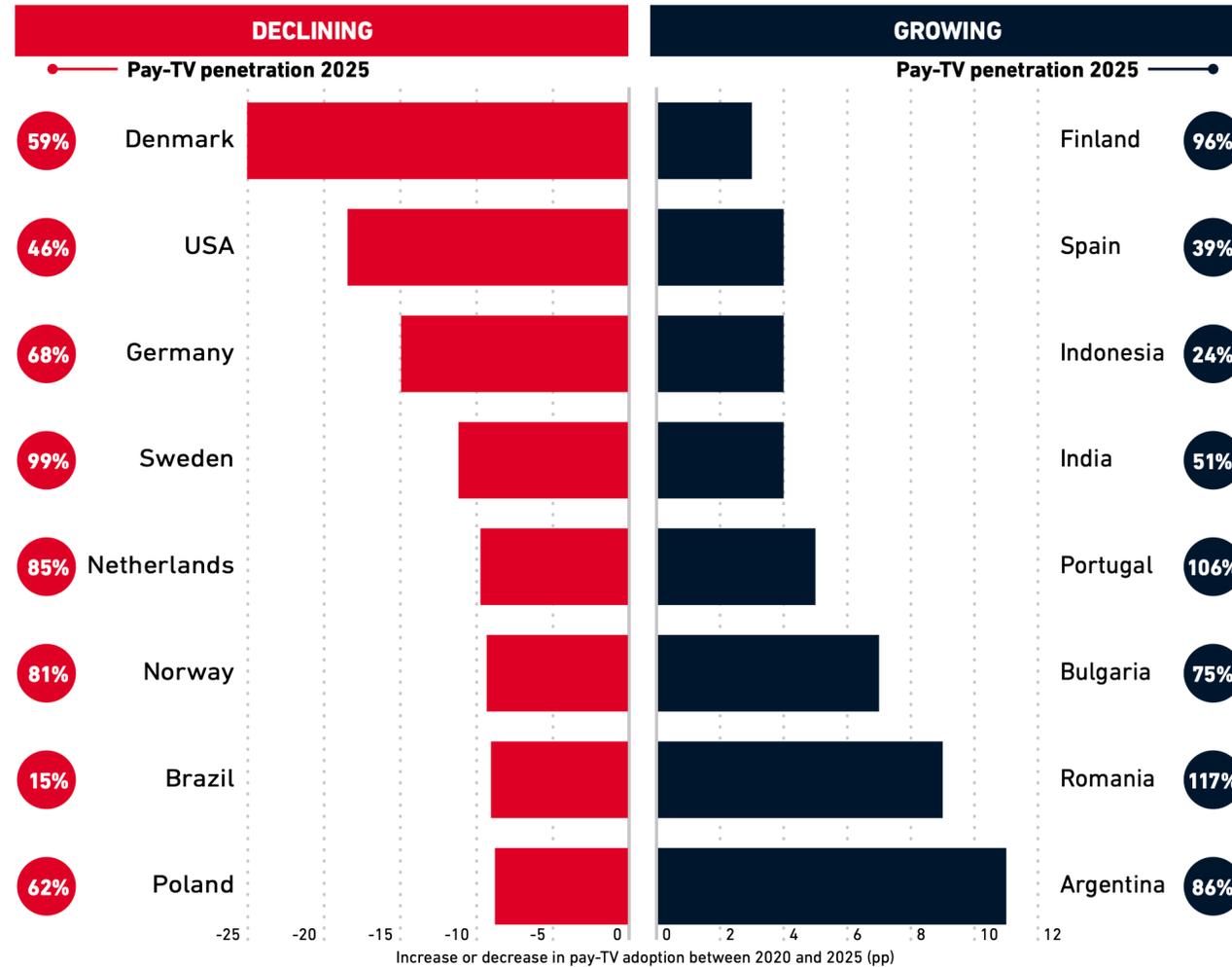
Source GSMA Intelligence Operators in Focus Survey

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Connectivity needs to be bundled with services

Percentage of total IoT revenues

■ Connectivity	■ Applications, platforms and services	■ Professional services
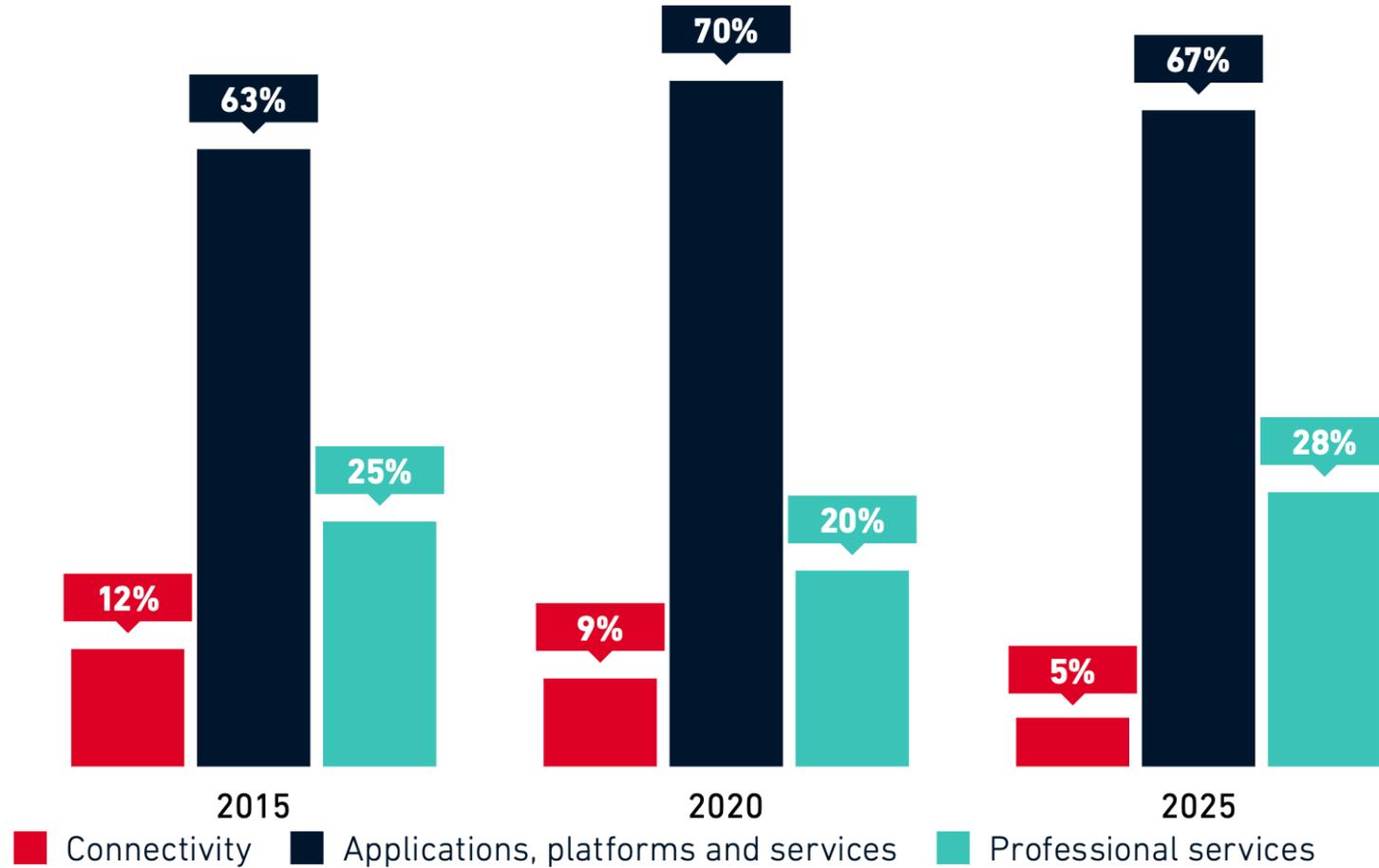
Source IoT revenue: state of the market 2020, GSMA Intelligence

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Change in traditional pay-TV household penetration

DECLINING	GROWING
● Pay-TV penetration 2025	Pay-TV penetration 2025 ●

Penetration 2025	Country		Country	Penetration 2025
59%	Denmark		Finland	96%
46%	USA		Spain	39%
68%	Germany		Indonesia	24%
99%	Sweden		India	51%
85%	Netherlands		Portugal	106%
81%	Norway		Bulgaria	75%
15%	Brazil		Romania	117%
62%	Poland		Argentina	86%

-25 -20 -15 -10 -5 0   0 2 4 6 8 10 12

Increase or decrease in pay-TV adoption between 2020 and 2025 (pp)

Note: because of multiple subscription households and business, figures exceed 100%.

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The portfolio of services beyond core offered by operators spans a variety of sectors

CORE TELECOMS

BEYOND CORE

ENTERPRISE

Mobile voice, messaging and data	Fixed voice and broadband
Leased lines	Private networks / MPLS WAN IP-VPN
Unified communications and web conferencing	SD-WAN

Enterprise IoT	Cloud and edge	Security
Big data and analytics	Advertising and digital marketing	IT
Professional services	Financial services	B2B content and e-sports

CONSUMER

Mobile voice, messaging and data

Fixed voice and broadband

Traditional pay TV	OTT video content and services	Health and fitness
Gaming	Digital payments and commerce	Utilities
Smart home	Financial services	E-sports

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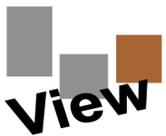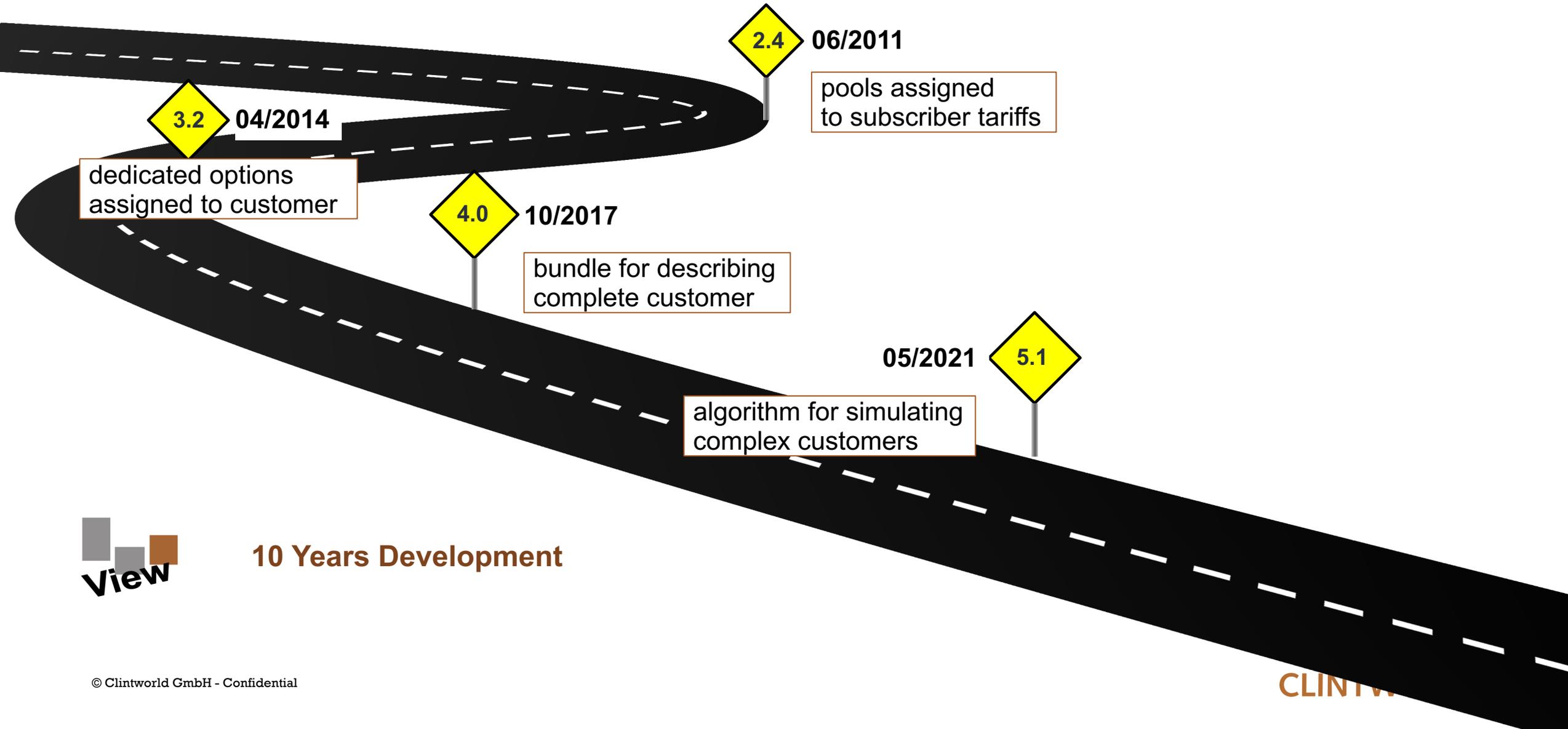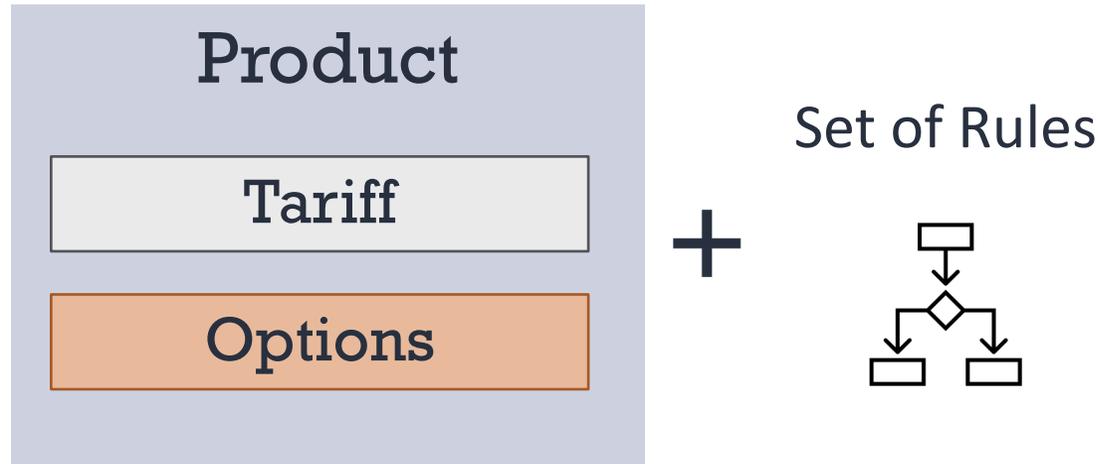
Combinatorics

- 4 products, 5 subscriptions and 2 global options => ~ 2000 combinations
- 5 products, 10 subscriptions and 3 global options => ~ 30 Mio. combinations

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Clintview Customer Simulation

2.4 06/2011
pools assigned
to subscriber tariffs

3.2 04/2014
dedicated options
assigned to customer

4.0 10/2017
bundle for describing
complete customer

05/2021 **5.1**
algorithm for simulating
complex customers

10 Years Development

Product

Tariff

Options

+

Set of Rules

- Main Objects for Subscriber Simulations are „Products"

- Rules for defining the Target for each subscriber individually

- Simulate complete portfolio (enough disc space and calculation power)

Large batch simulations as standard process

View

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Bundle

Products

Customer Options

+

Set of Rules

+
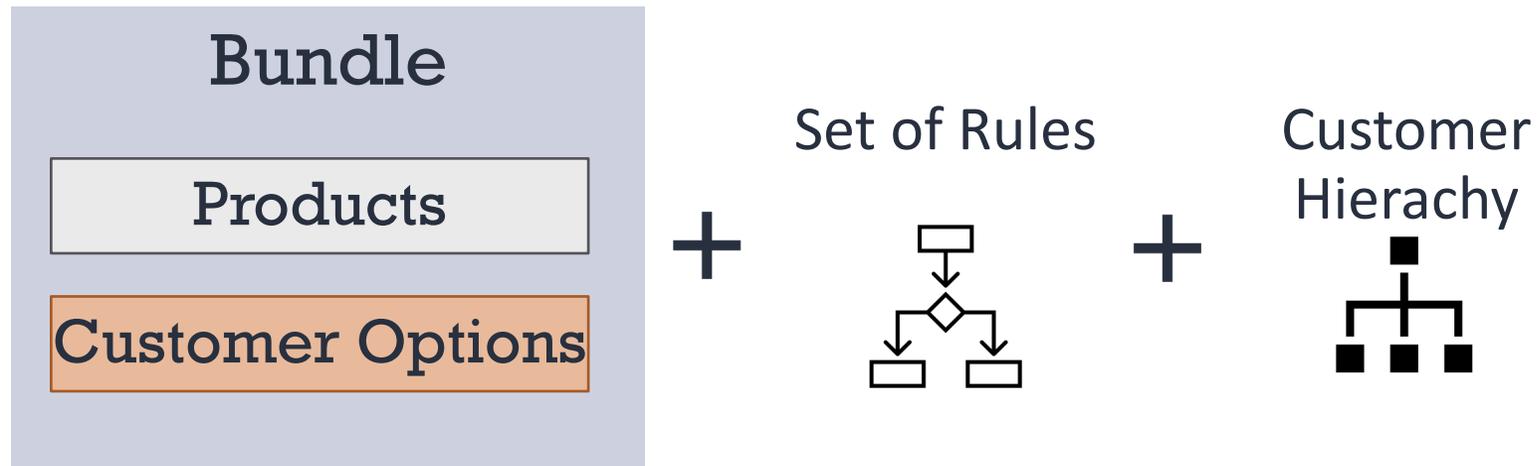
Customer
Hierachy

- Main Object for Customer Simulations are „Bundles"

- Rules for defining the Target get more complex

- Focus on simulation rules (you can not simulate "everything")

View **4.0** **Correct complex calculations are possible**

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Analysis of customer base
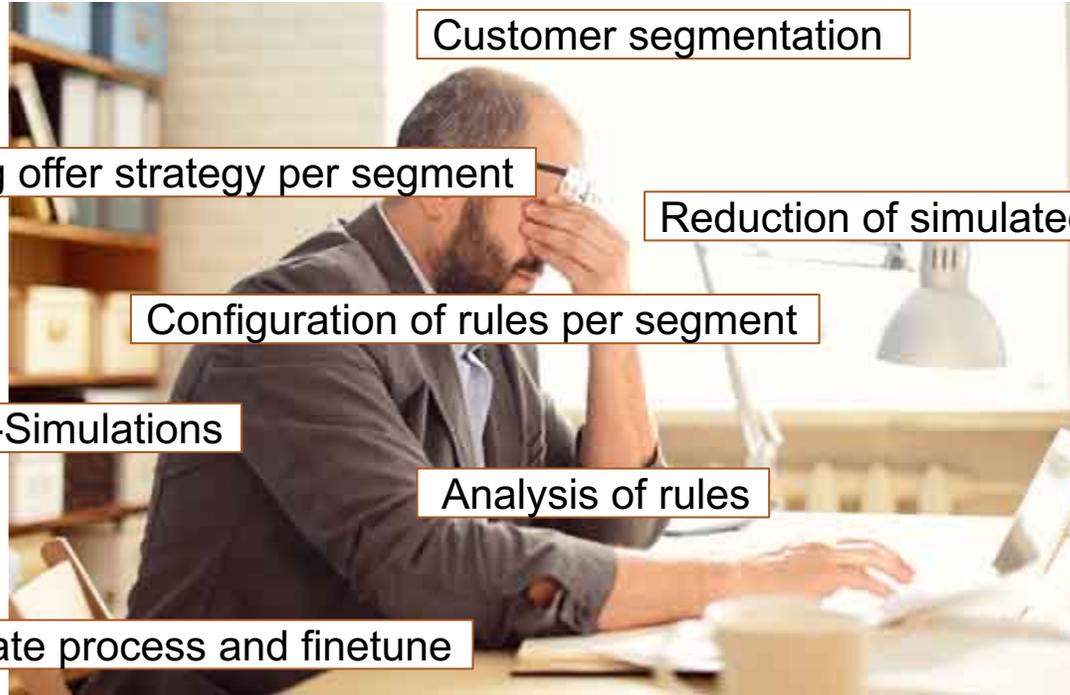
Customer segmentation

Defining offer strategy per segment

Reduction of simulated offers

Configuration of rules per segment

Test-Simulations

Analysis of rules

Iterate process and finetune

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View 4.0 **General approach hard to achieve**
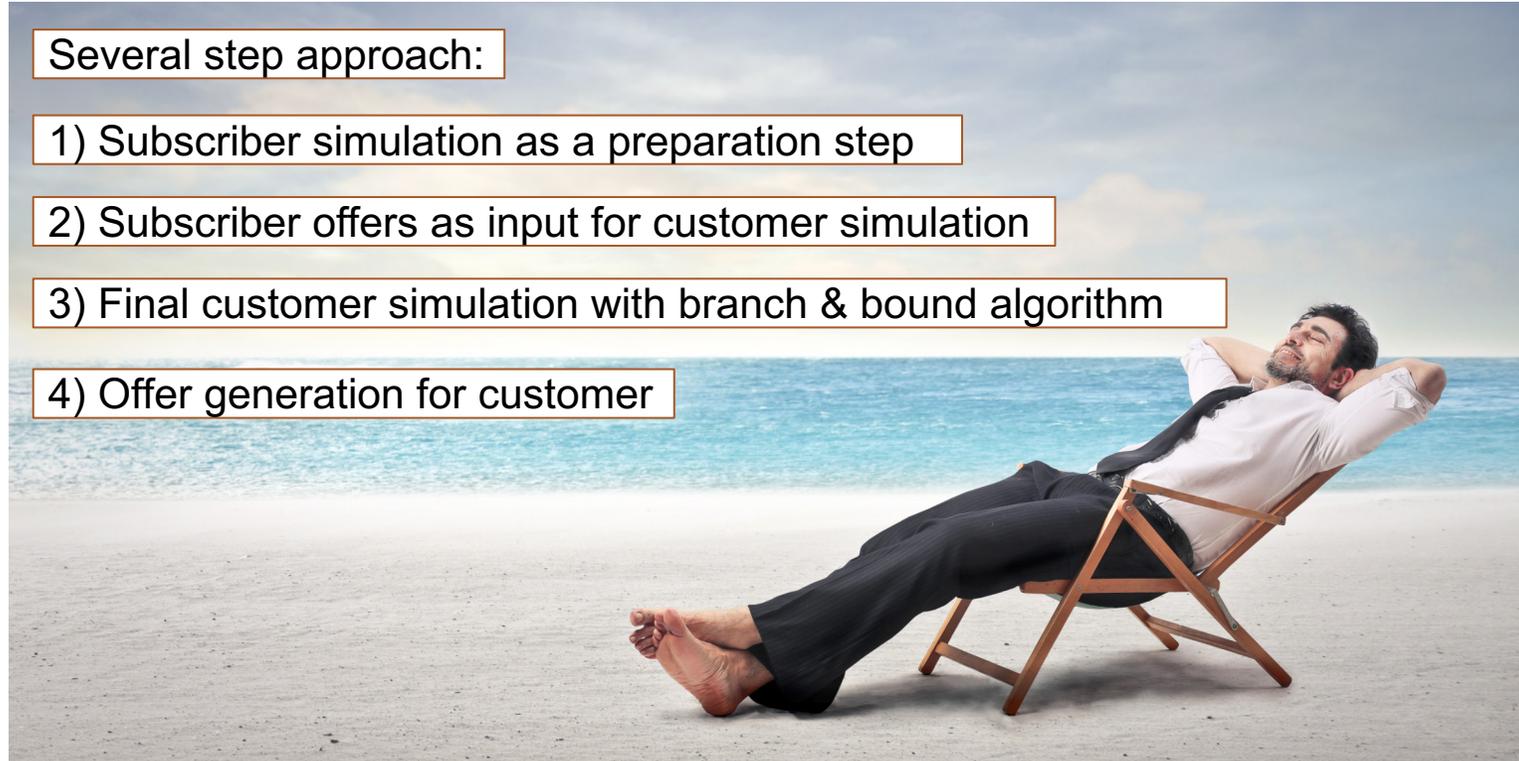
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Several step approach:

1) Subscriber simulation as a preparation step
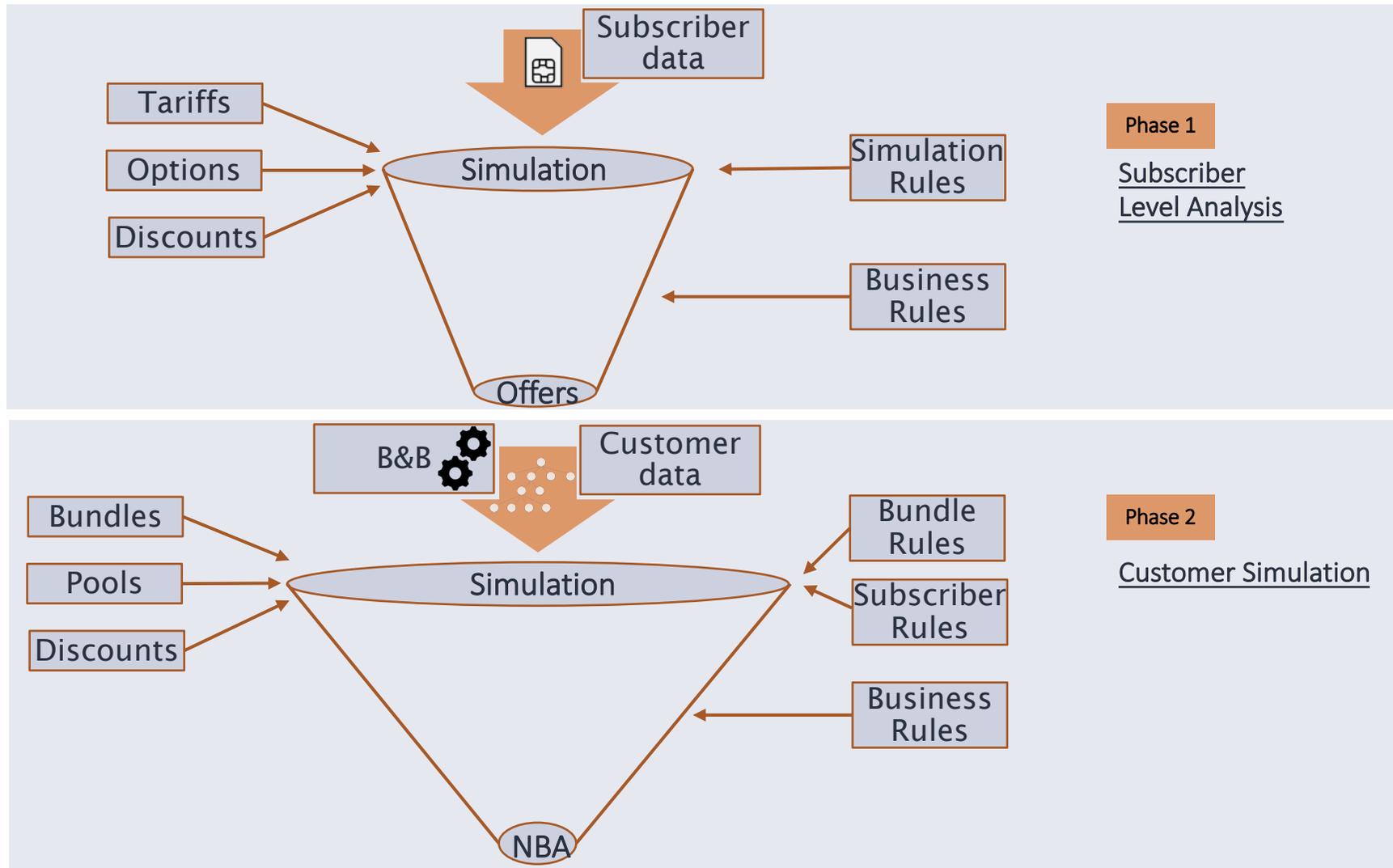
2) Subscriber offers as input for customer simulation

3) Final customer simulation with branch & bound algorithm

4) Offer generation for customer

View **5.1** **Possible with current Clintview version**

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Principle of Customer Simulation

Simulation Rules (pricing relevant)

- Drop old options for offer current ones

- Only offer usage discounts with no overusage

Business Rules

- Apply tariff change matrix

- Only one tariff downgrade step is allowed

- Limit increase or decrease of ARPU

To be erweitert

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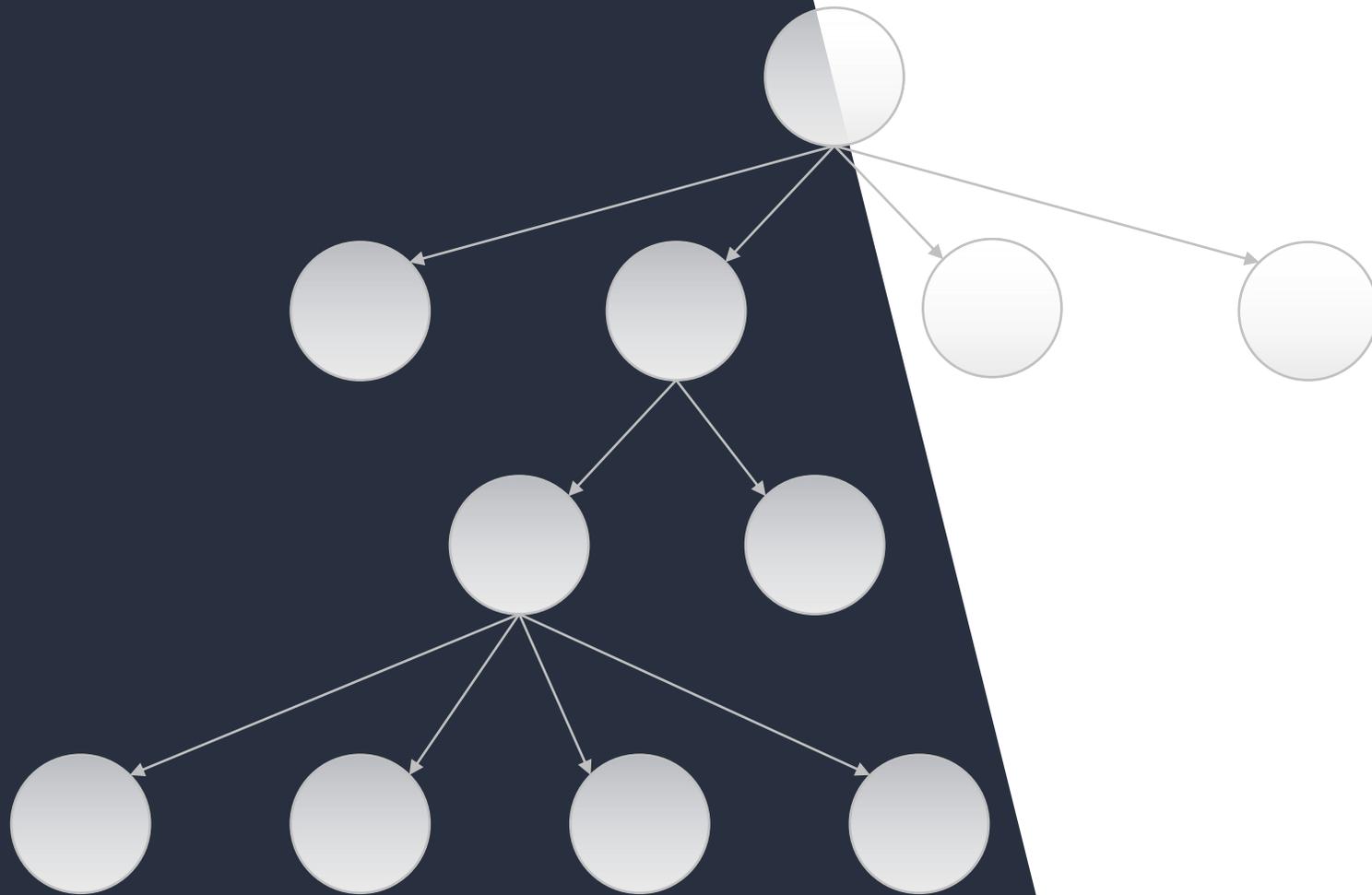Simulation Rules (pricing relevant)

- Add additional discounts for at least two high value tariffs

Business Rules

- Limit increase or decrease of total ARPU

- Create an upselling or loyalty offer for customer

To be erweitert

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Branch & Bound

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Clintview™

Thank you!

Dirk Schmidt / Sven Heins

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Example

Voice	Messaging	Data
• 100 Minutes • 500 Minutes • 1000 Minutes	• 100 SMS • 500 SMS • 1000 SMS	• 5 GB • 10 GB • 25 GB

Customer / Group Options

- 10% if 3 or more SIM cards are active
- 20% if TV Bundle is active

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