Voice Technology: Finally 'Hear' for Food & Other Manufacturers

advancedmobile GROUP

Jim Donahue

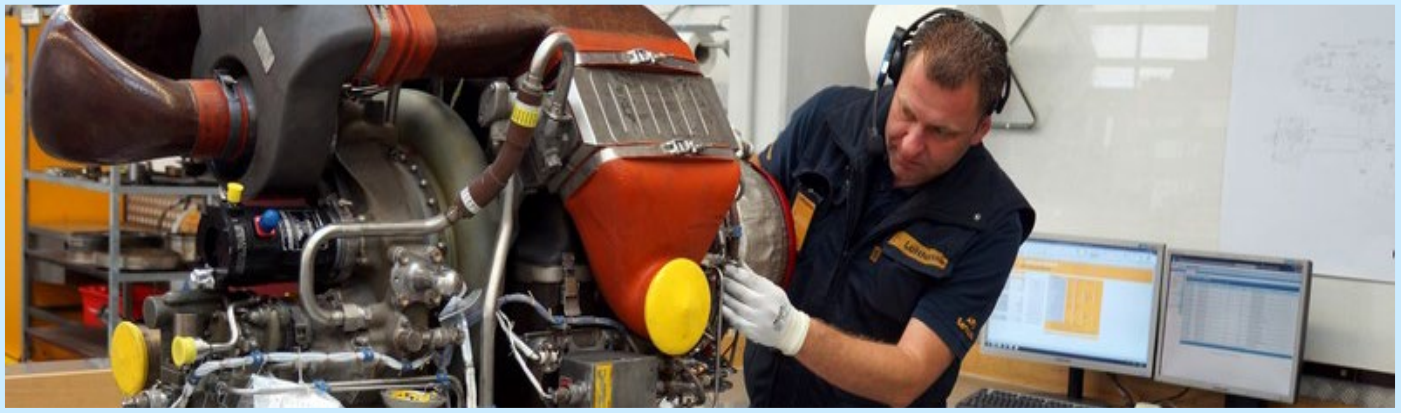
The Current State of Voice-Directed Work

Distribution Centers:

- Picking
- Put-Away & Replenishment
- Cycle Counting
- Bulk Picking/Put-to-Store

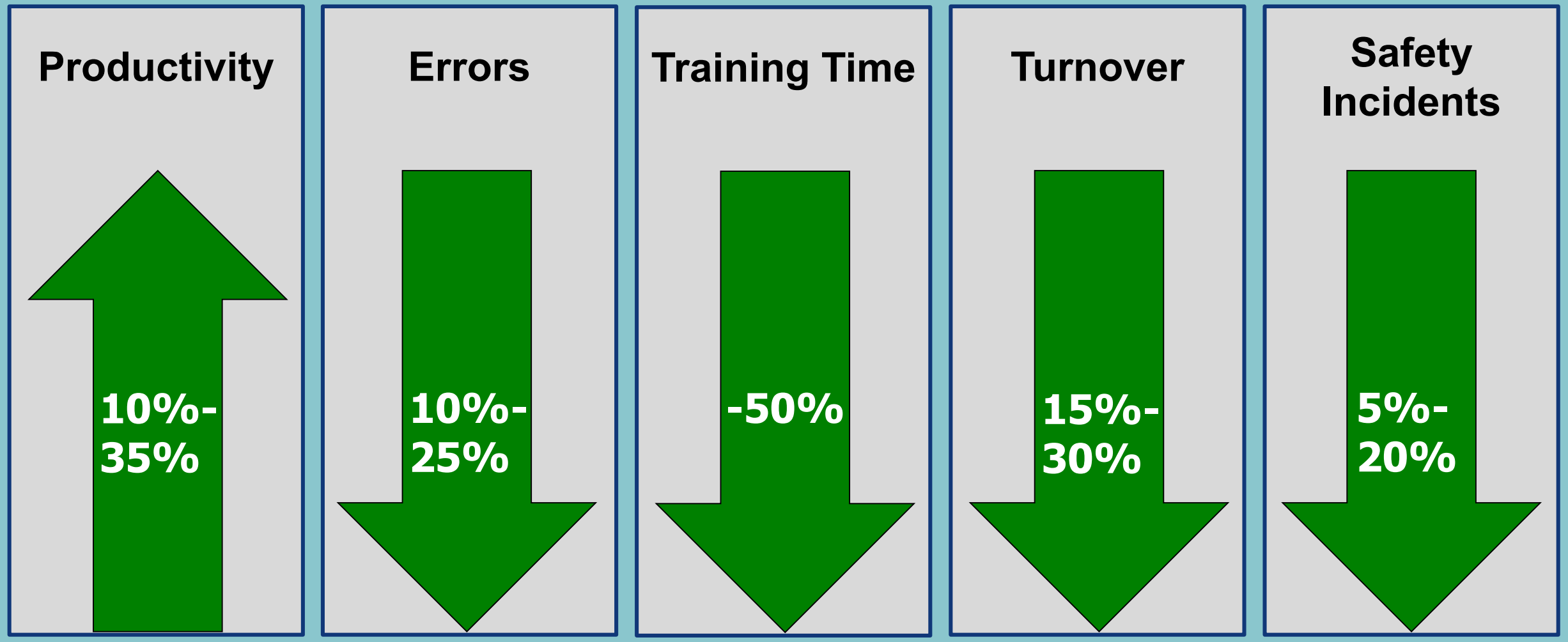
And:

- Assembly Line
- MRO Inspections
- & More…

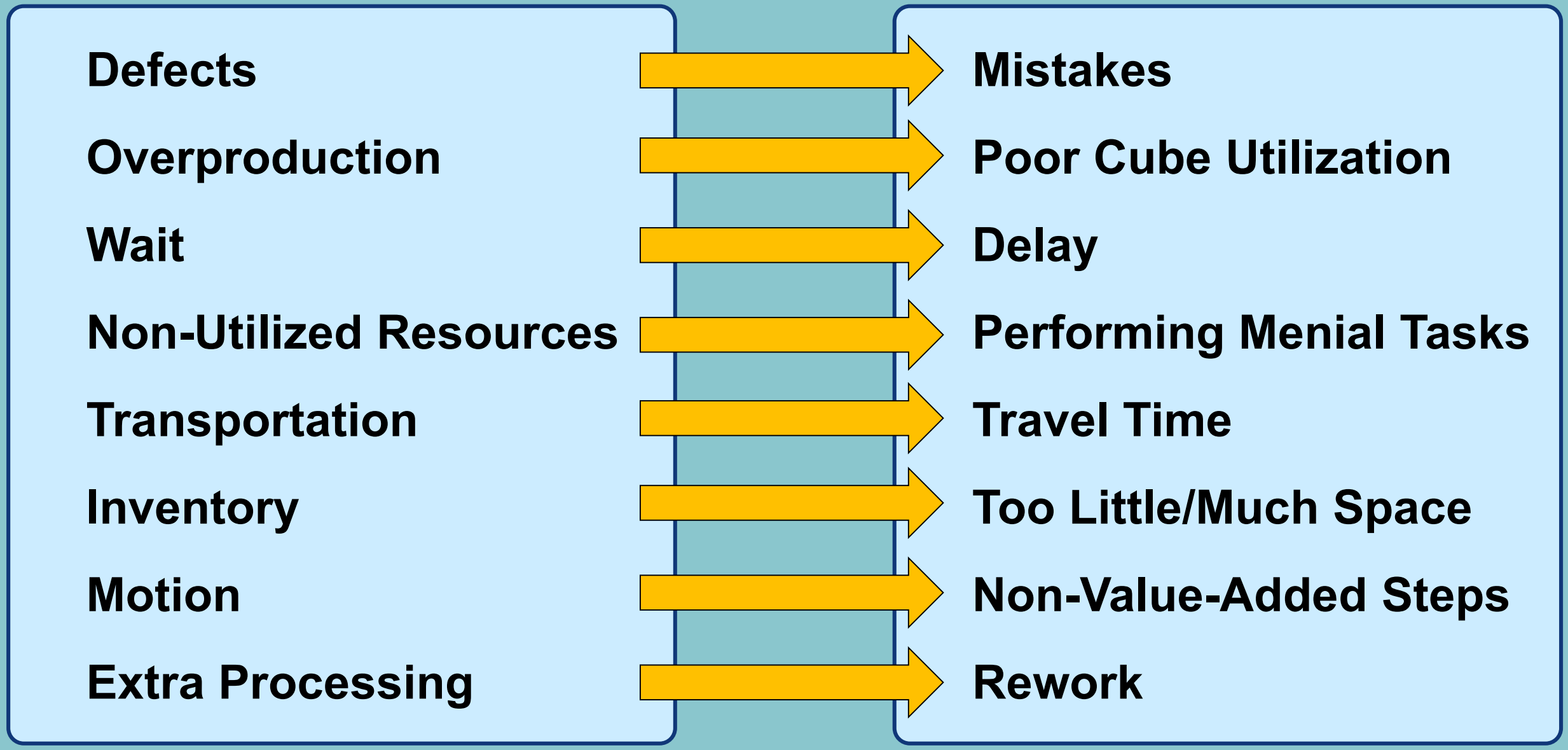


Why Voice-Directed Work?

The Benefits Have Been Huge…



8 Forms of Waste In The DC



Drilling Down into the Food Industry:

Challenges

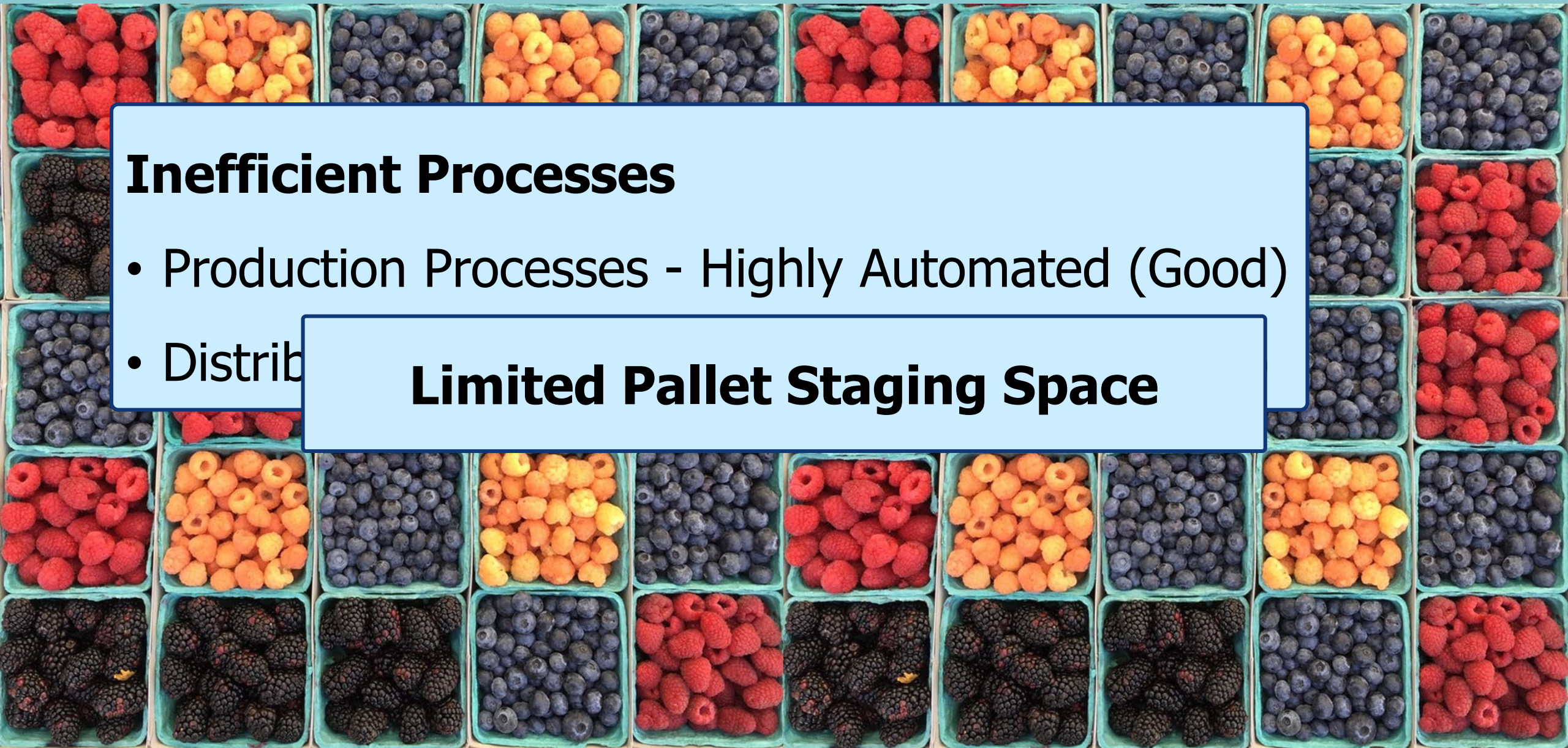
- The Plastic Ban
- Meat-free & Veganism
- Regulatory Compliance
- E-commerce (Omni-channel)
- Product Traceability
- **Inventory Management**

Drilling Down into the Food Industry:

Inventory Management Challenges

- Customer Demand
- Lack of Visibility
- **Inefficient Processes**

Drilling Down into the Food Industry:



Inefficient Processes

- Production Processes - Highly Automated (Good)
- Distrib

Limited Pallet Staging Space

Limited Pallet Staging Space

Results in:

- Additional Non-value-added Pallet Moves
- Causes Nearly ALL Forms of Six-Sigma Waste

Remedies include:

- Going Vertical
- Going Horizontal
- Relocating
- **Software**

Software

Pallet Staging & Truck Loading Software Comparison

	Traditional	Voice
Operator-directed Moves	Yes	Yes
System-directed Moves	Yes	Yes
Supports Stacking LPs	Yes	Yes
Supports Consolidating LPs	Yes	Yes
Automatically Directs the Loading of LPs	No	Yes
Automatically Minimizes Travel Distance & Time	No	Yes
Automatically Prevents LPs from being Blocked	No	Yes
Preemptively Directs Moves to Prevent Blocked License Plates	No	Yes
Automatically Substitutes Like LPs	No	Yes
Directs Picking Up and Placement of Pallets on Short or Long Sides	No	Yes
Supports Virtual Staging Positions	No	Yes
Automatically Adds On and Takes Away	No	Future

How Voice Solves For Limited Space

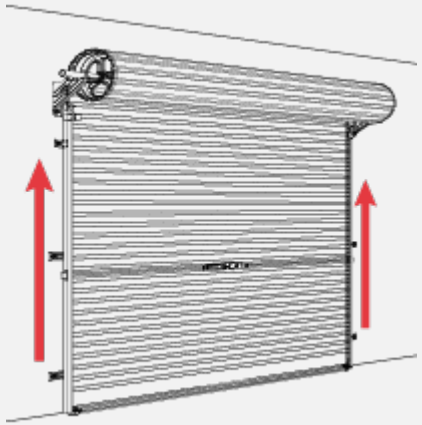
THE CHALLENGE

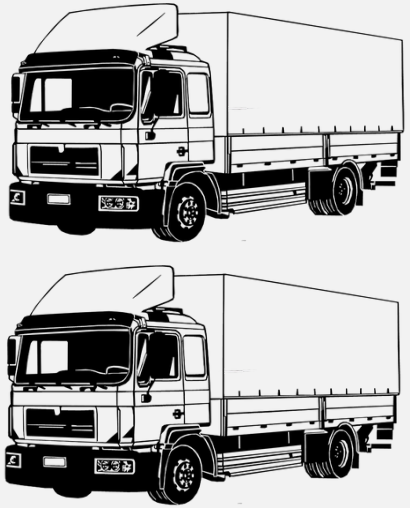
ONE Bay

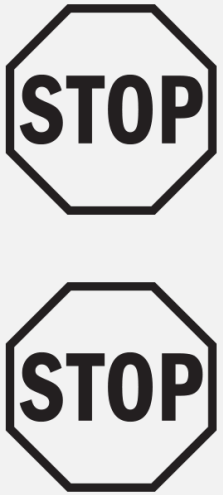
TWO Trucks making TWO STOPS

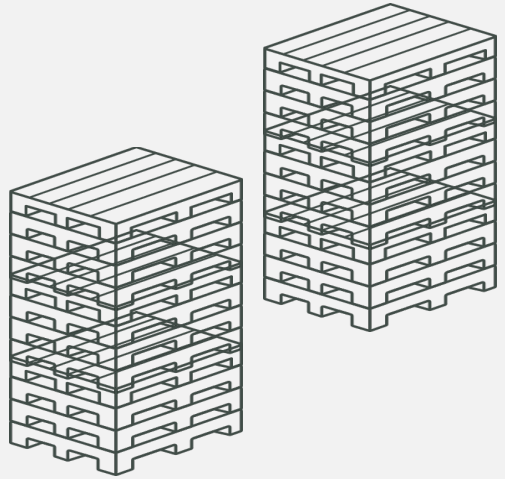
TWENTY-FOUR Pallets but Only THIRTEEN Staging Positions

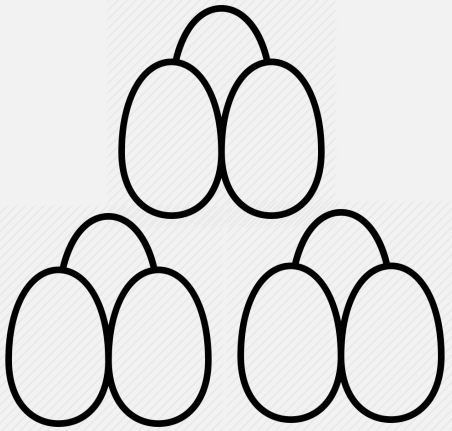
THREE Products











= Product 1

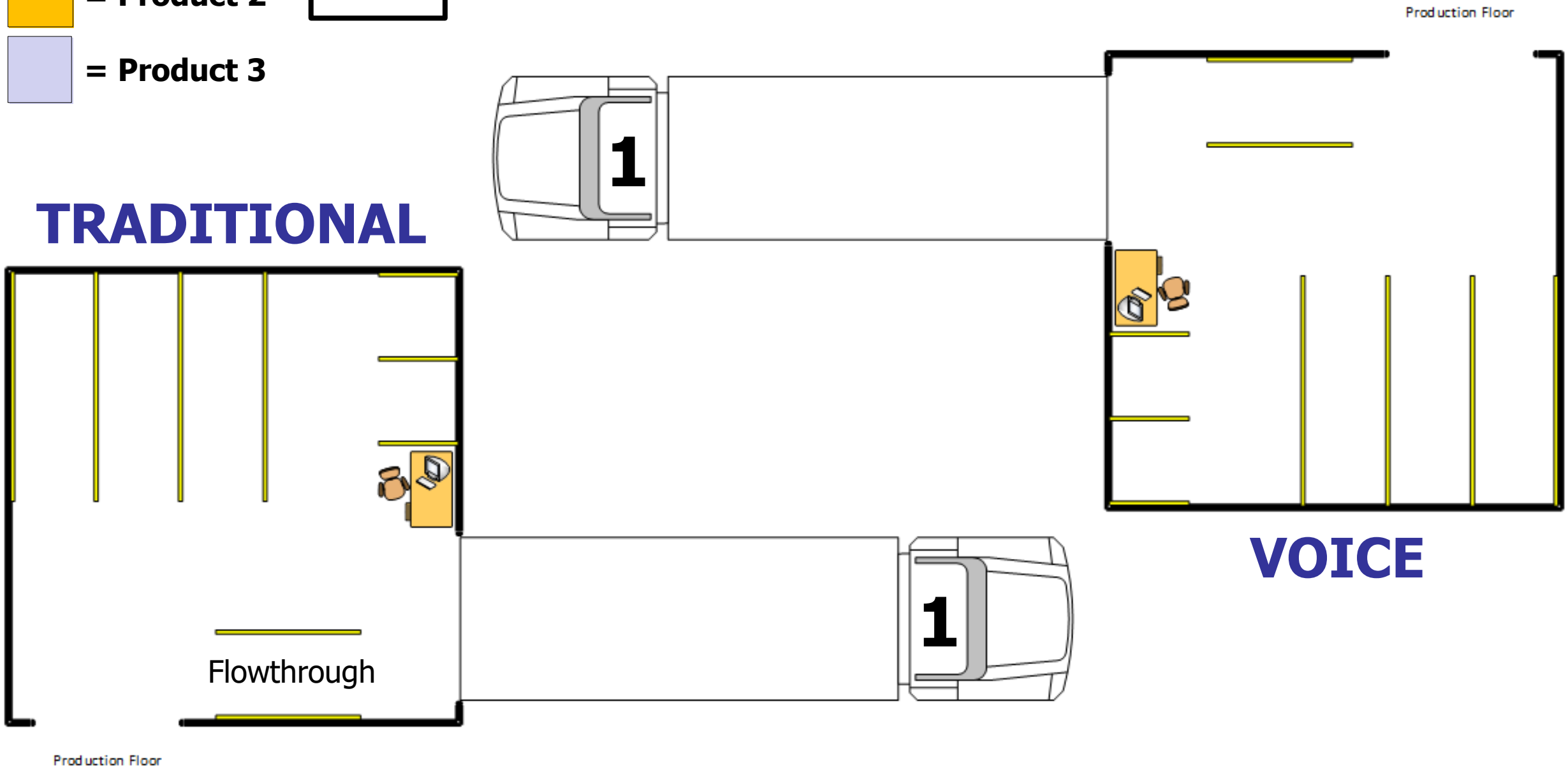
= Product 2

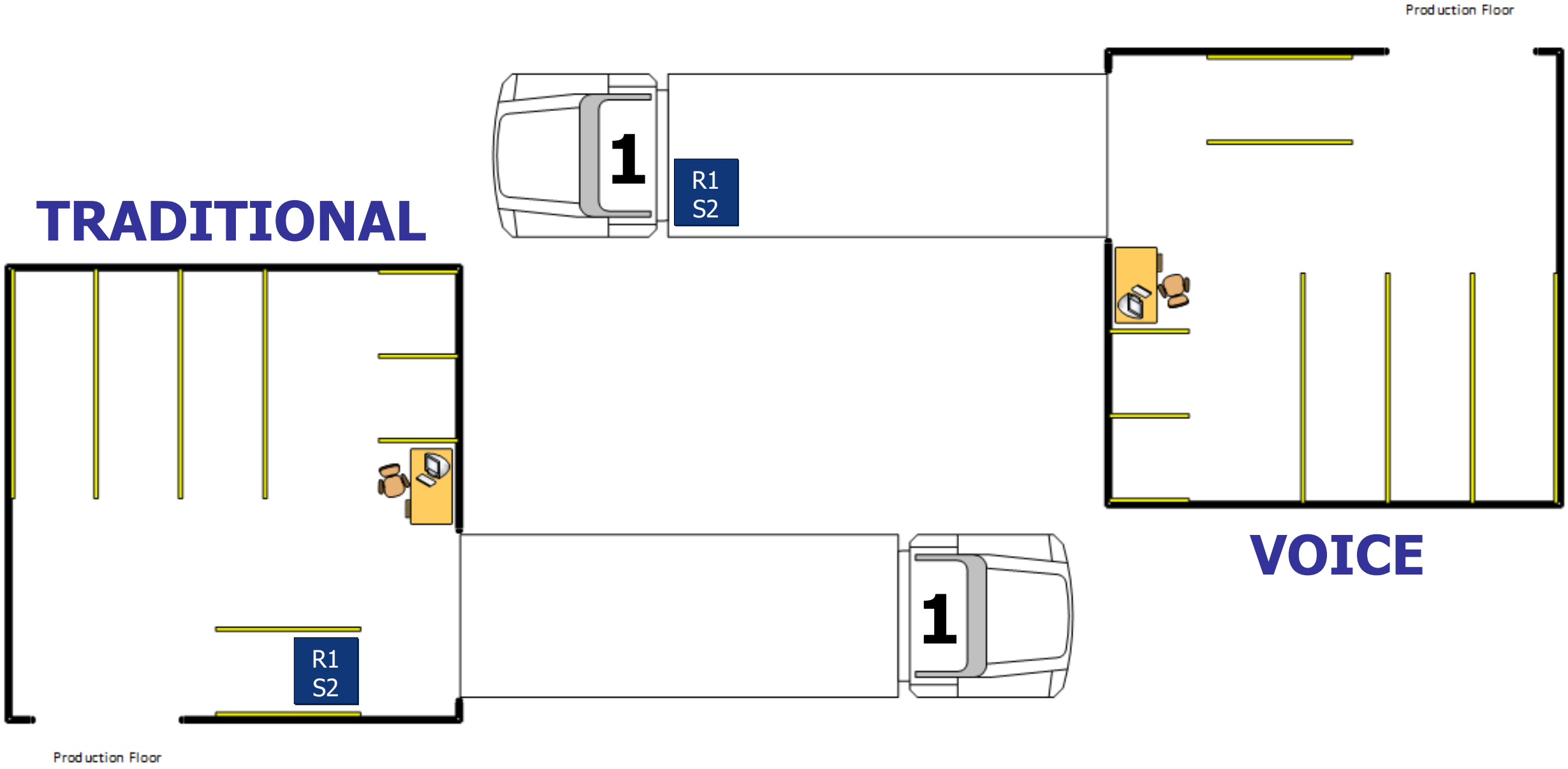
= Product 3

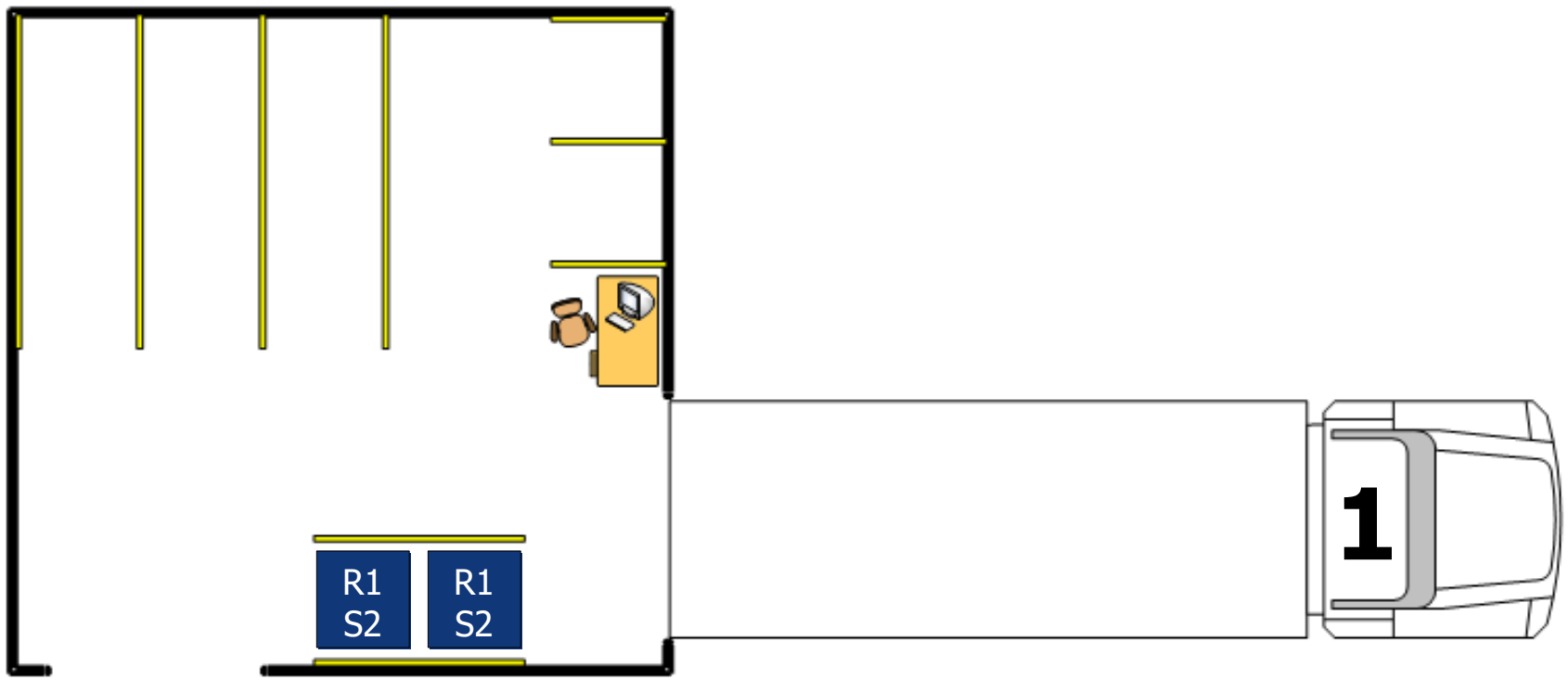
R #
S #

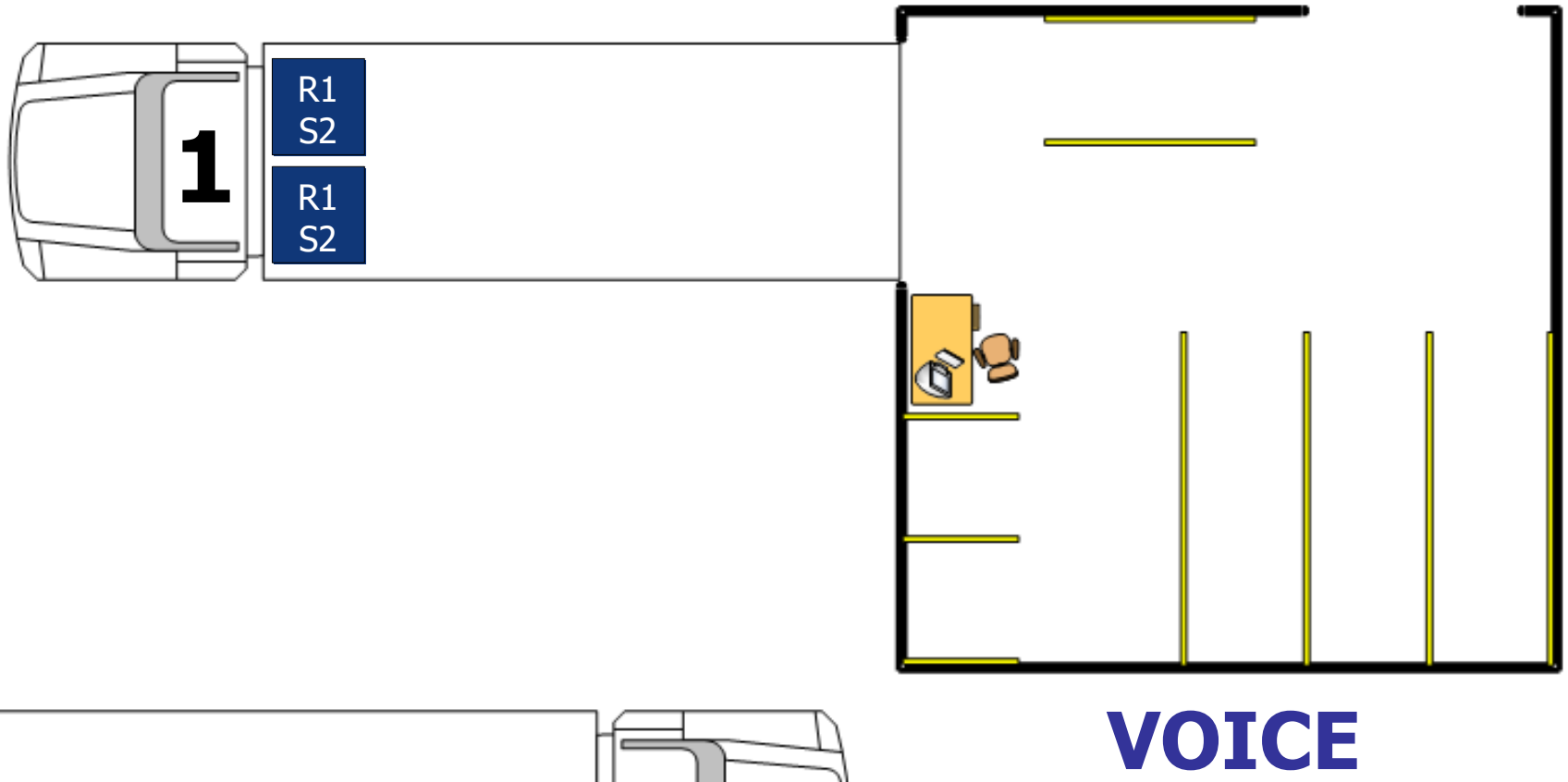
= Route

= Stop

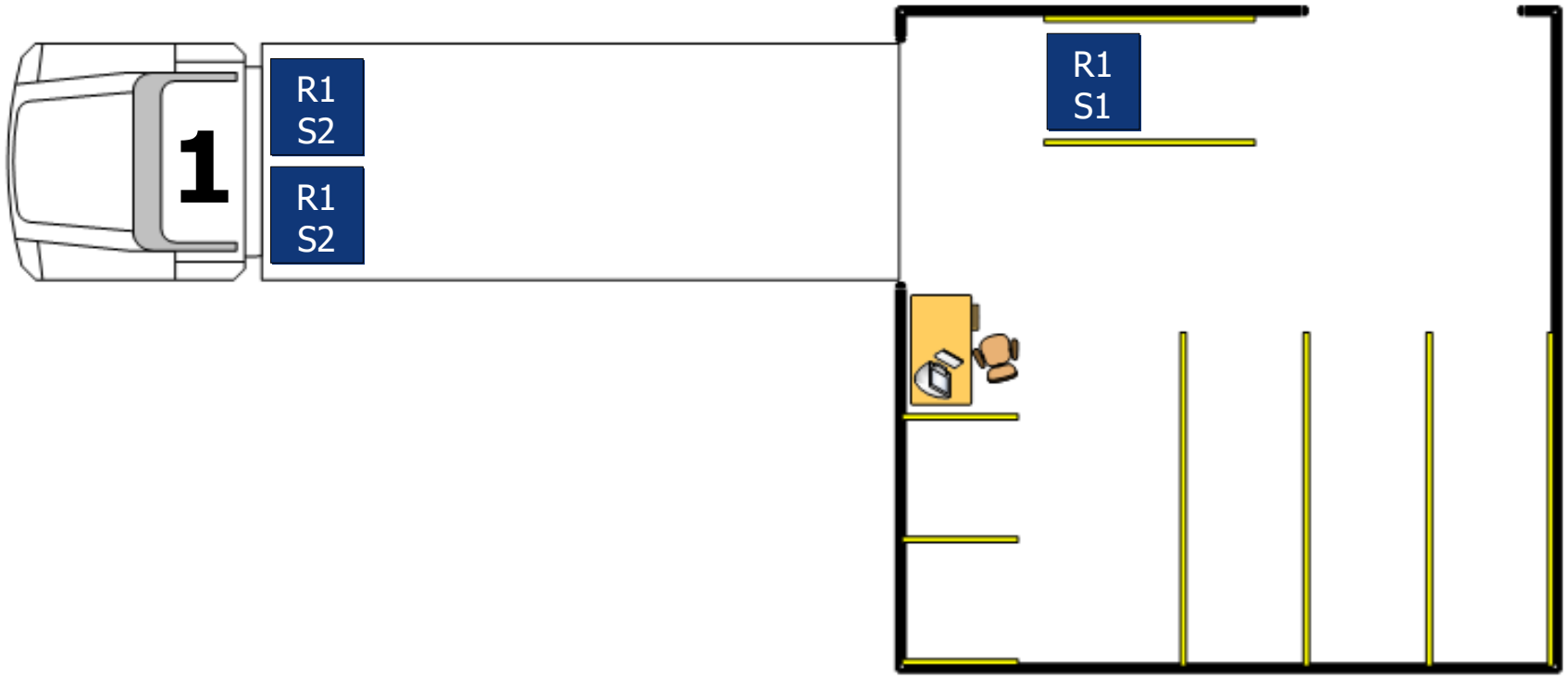



Production Floor
1
R1
S2
TRADITIONAL
VOICE
R1
S2
1
Production Floor


TRADITIONAL
R1
S2
R1
S2
1
Production Floor

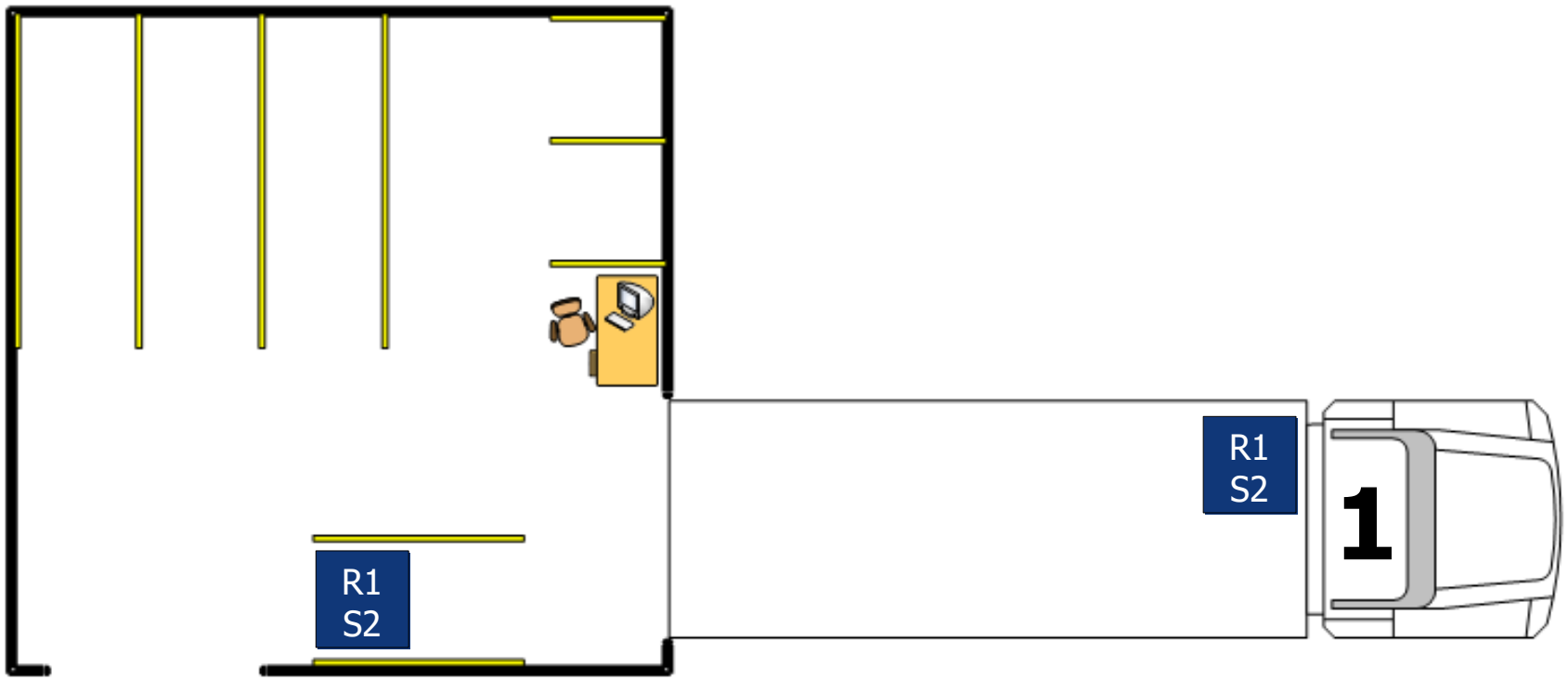

Production Floor
R1
S2
R1
S2
1
VOICE

Production Floor

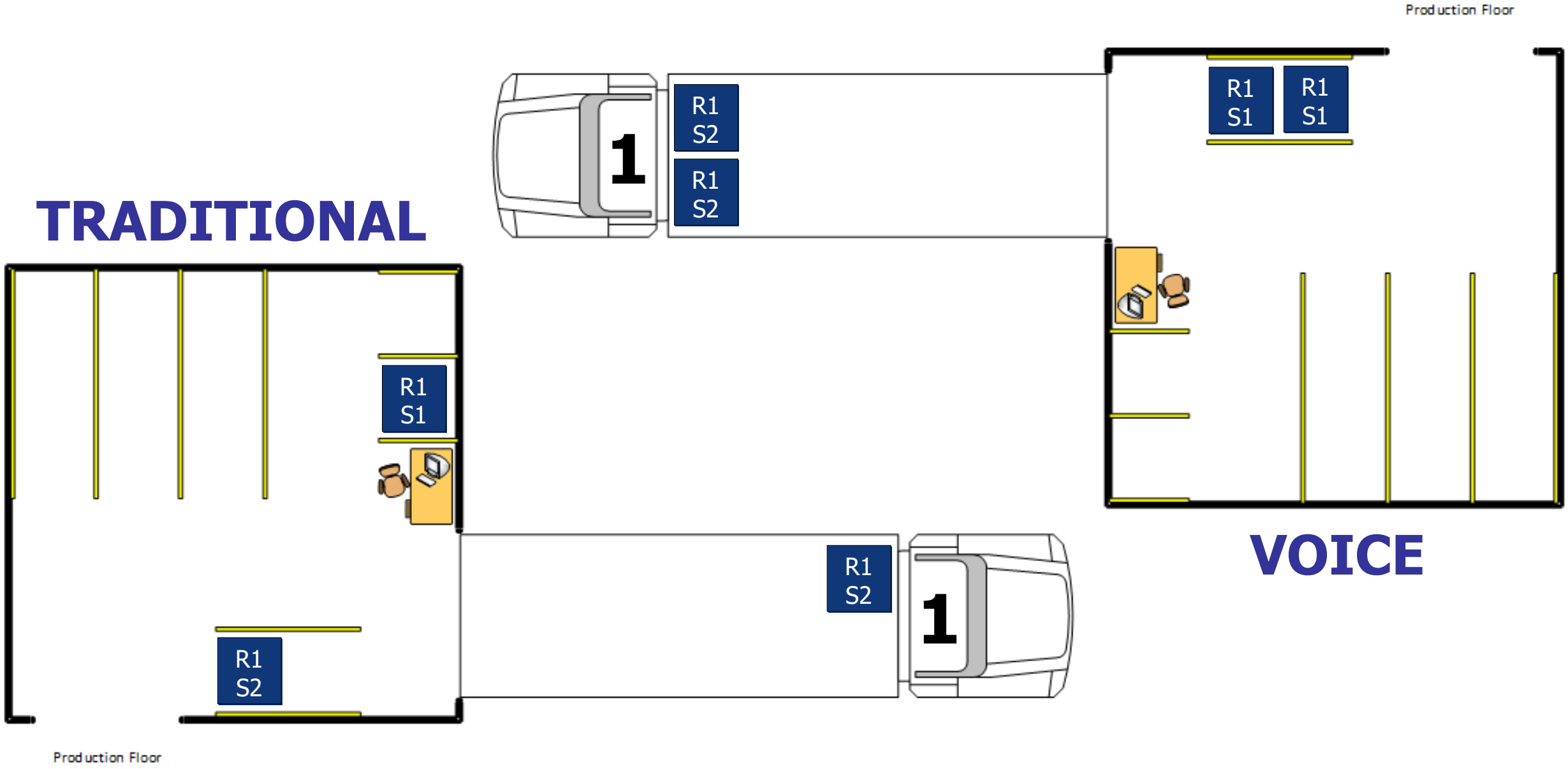


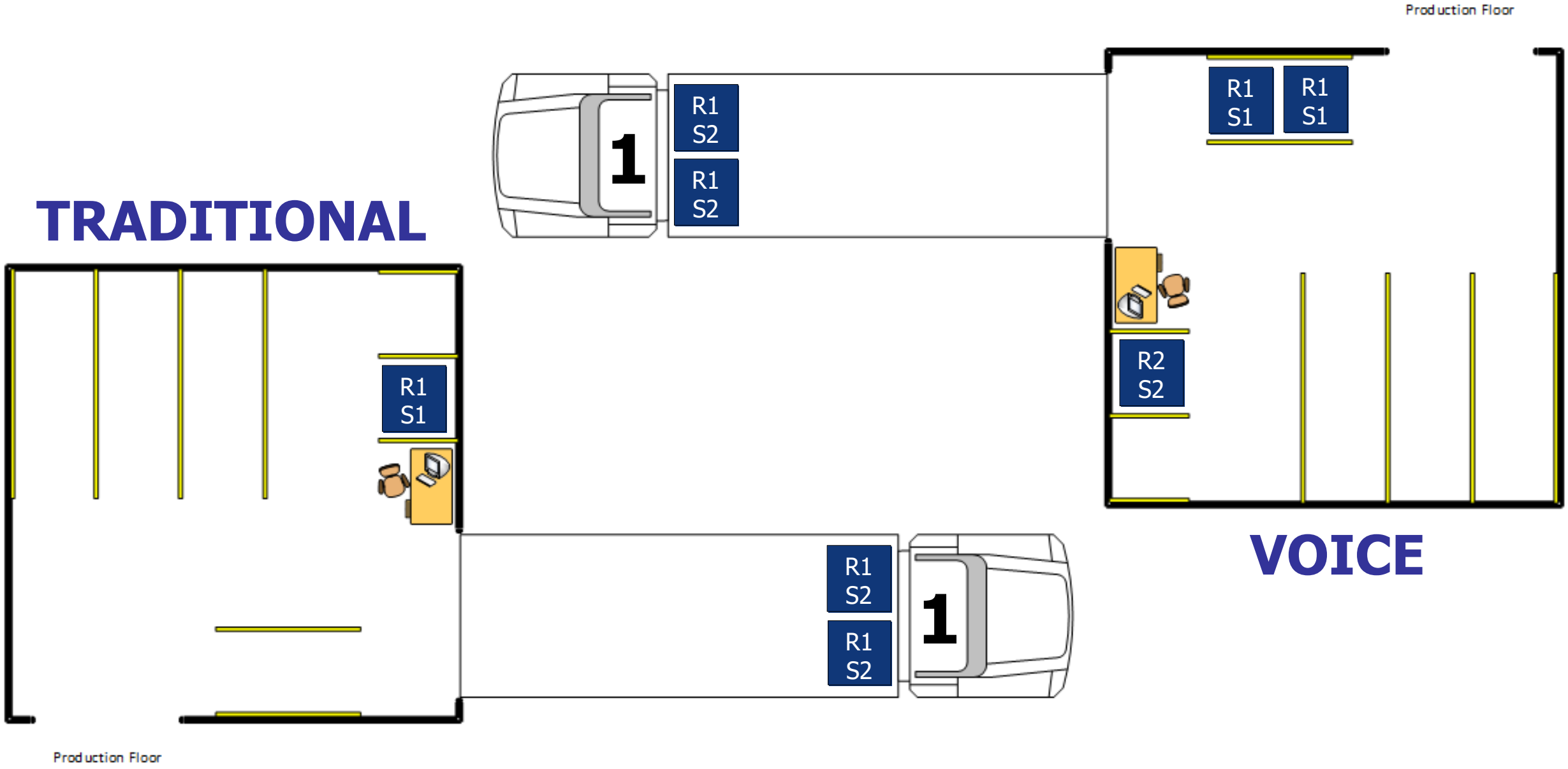
VOICE

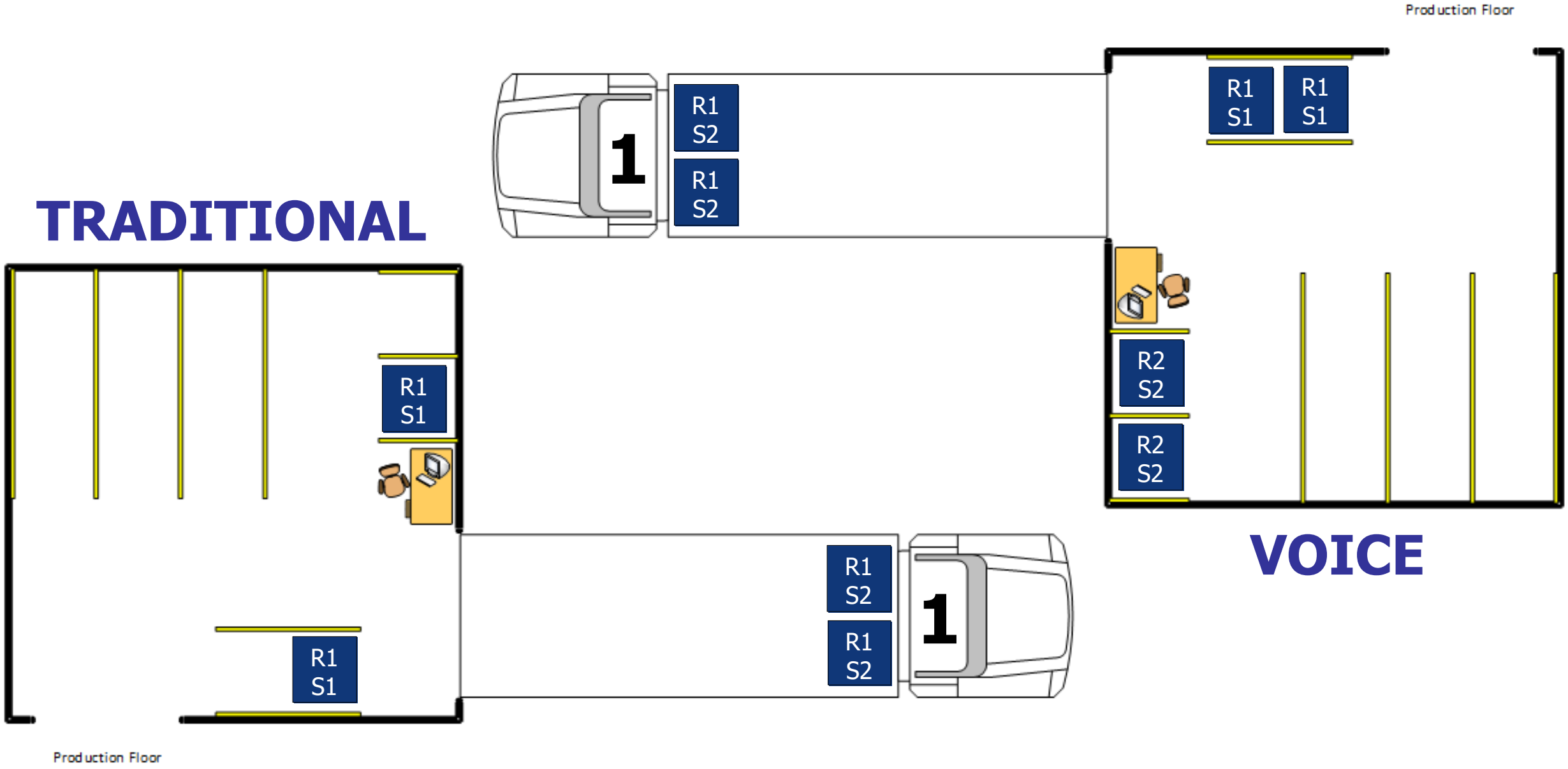
TRADITIONAL



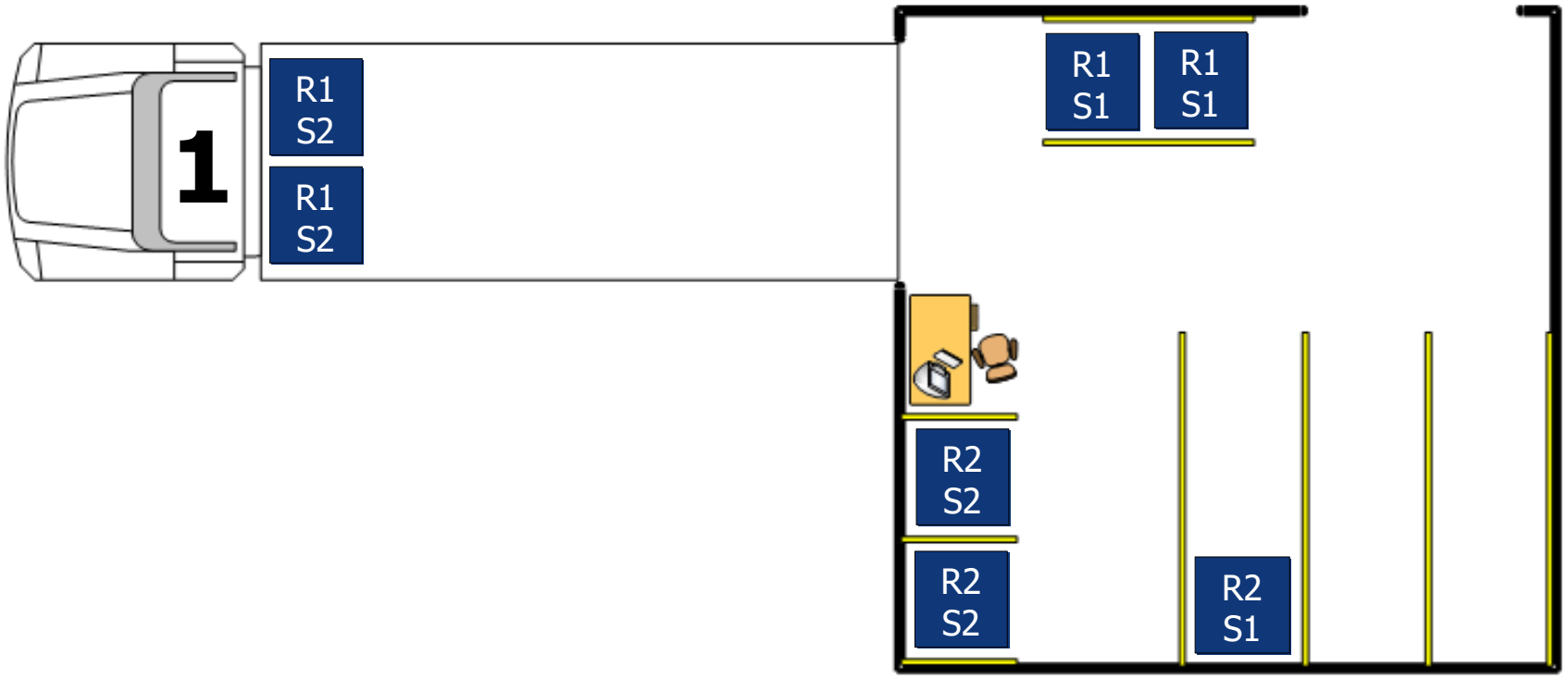
Production Floor


Production Floor
R1
S1
R1
S1
1
R1
S2
R1
S2
TRADITIONAL
R1
S1
R1
S2
R1
S2
1
VOICE
Production Floor


TRADITIONAL
R1
S1
R1
S2
R1
S2
1
Production Floor
R1
S2
R1
S2
1
VOICE
R1
S1
R1
S1
R2
S2
Production Floor

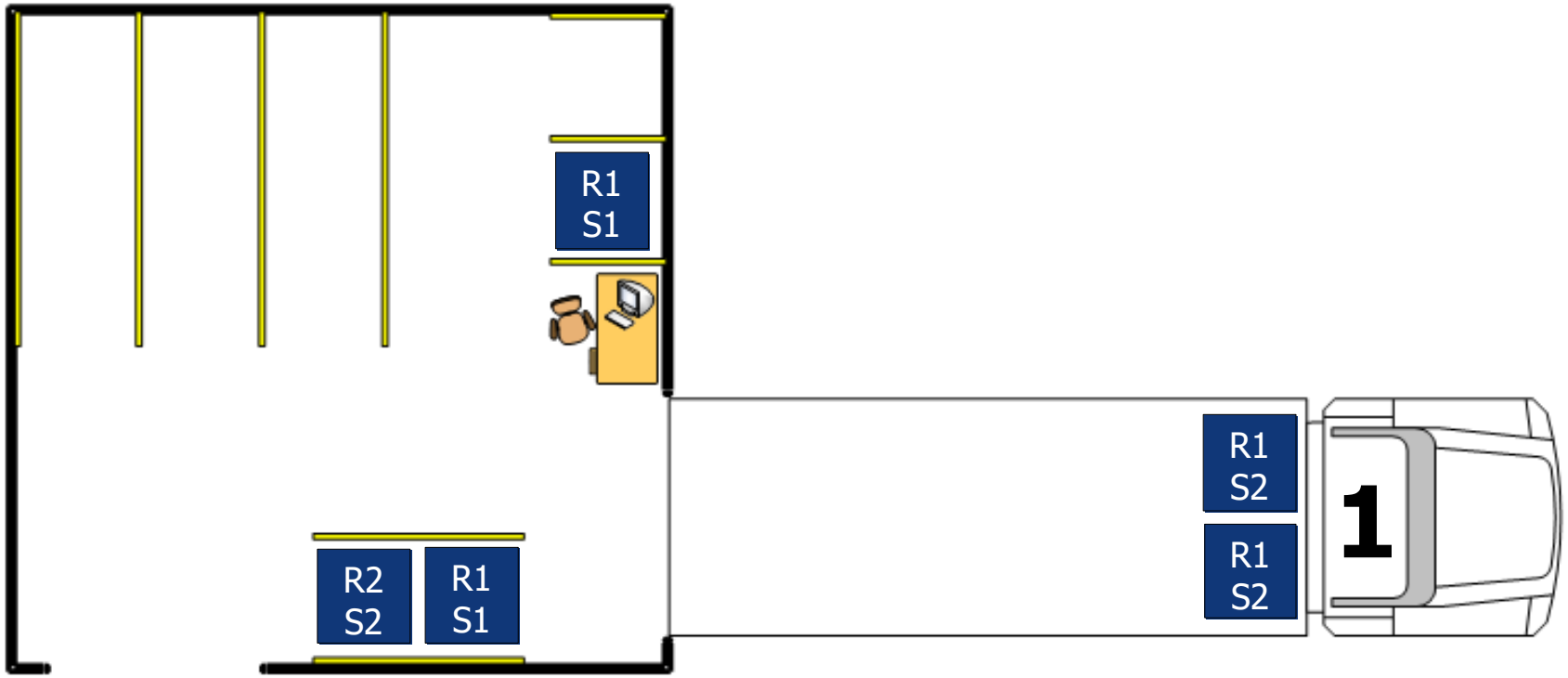

Production Floor
TRADITIONAL
1
R1
S2
R1
S2
R1
S1
R1
S1
R2
S2
R2
S2
VOICE
R1
S1
R1
S2
R1
S2
1
R1
S1
Production Floor

Production Floor

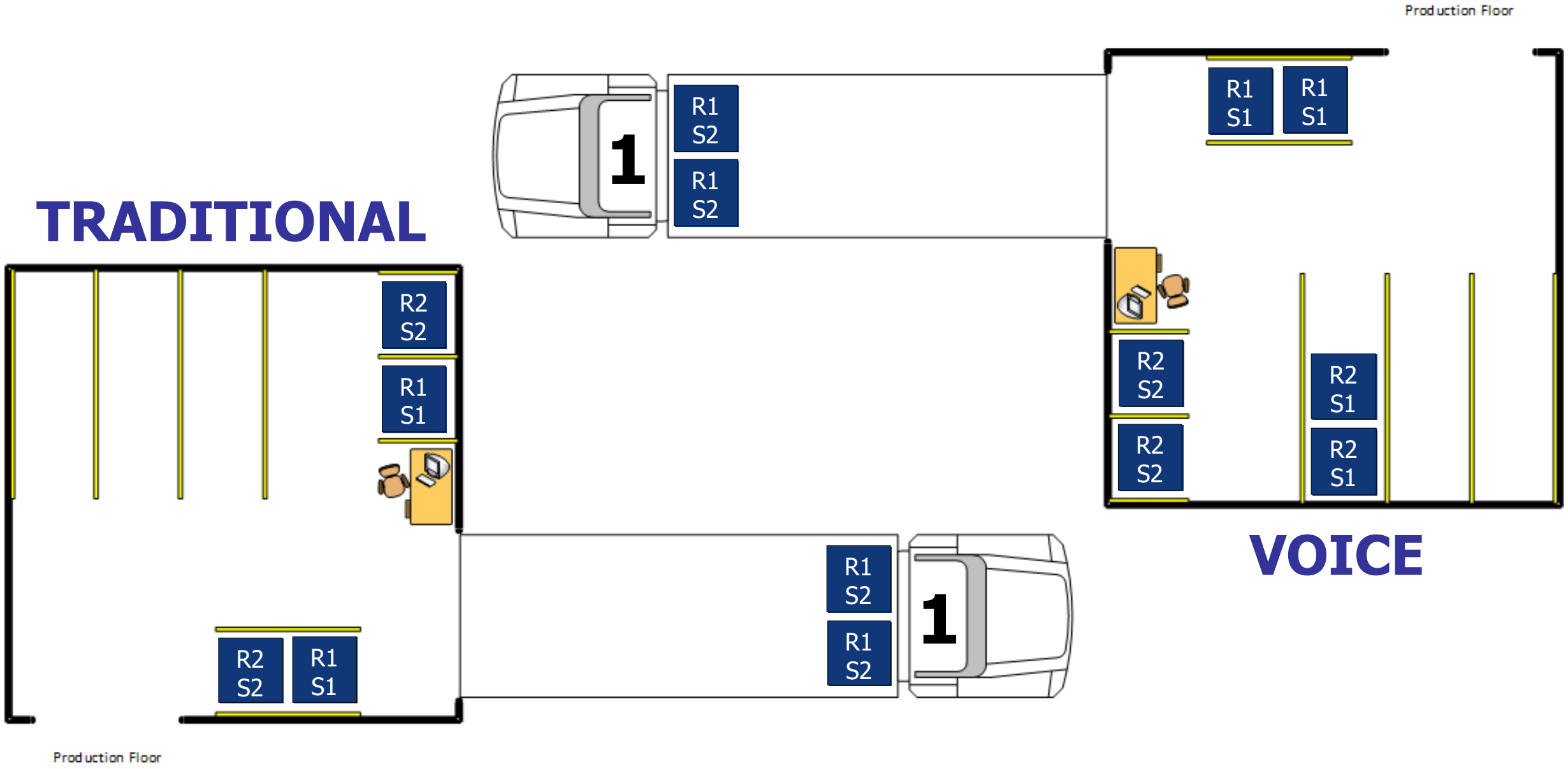


VOICE

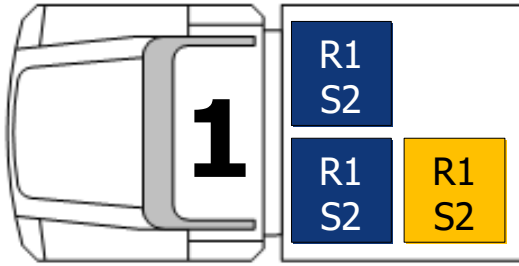
TRADITIONAL

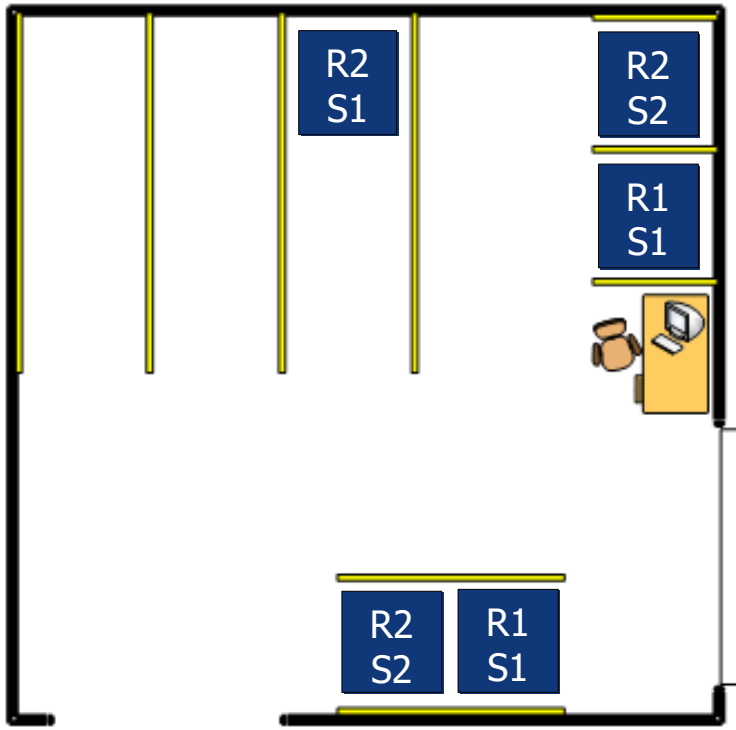


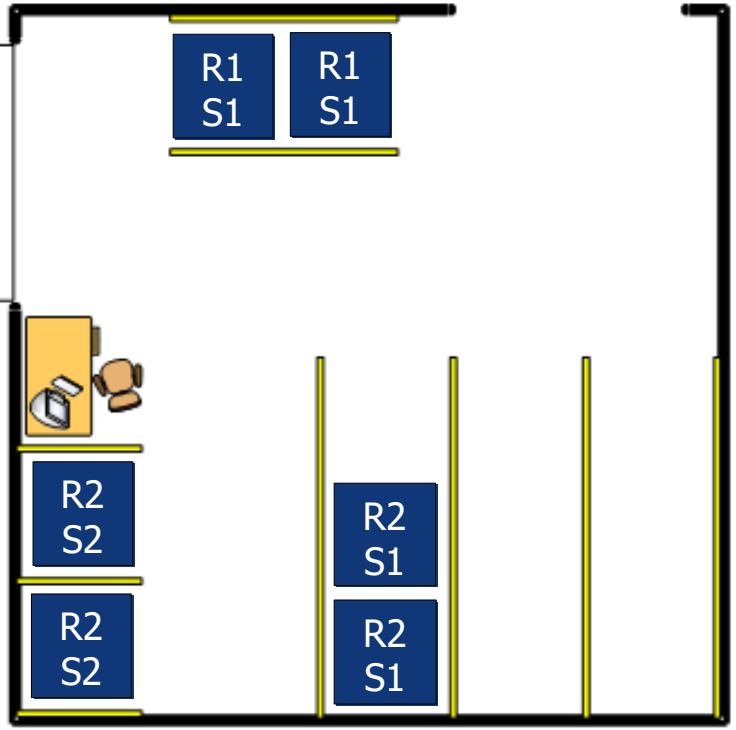
Production Floor


TRADITIONAL
R2
S2
R1
S1
R2
S2
R1
S1
1
R1
S2
R1
S2
Production Floor
VOICE
R1
S1
R1
S1
R2
S2
R2
S2
R2
S1
R2
S1
1
R1
S2
R1
S2
Production Floor

TRADITIONAL

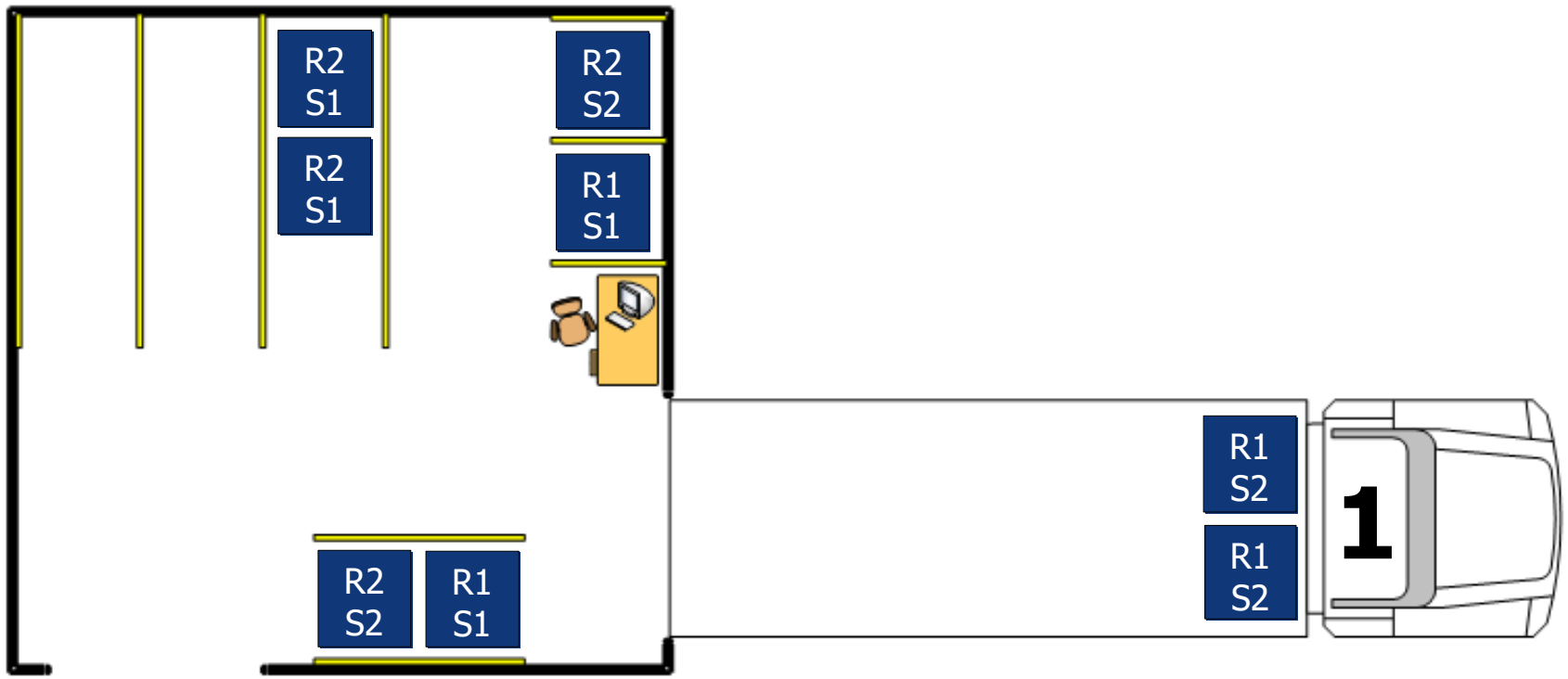






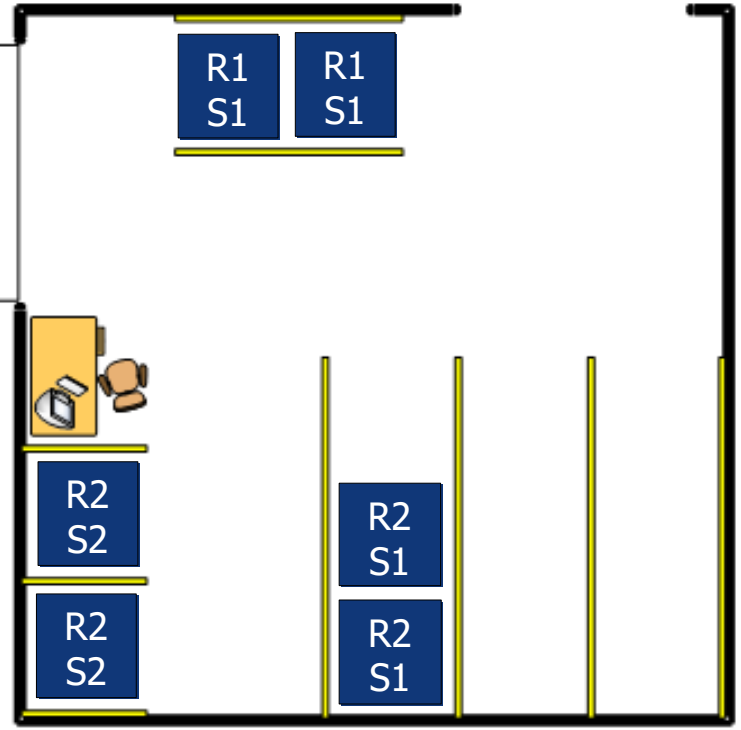
VOICE

TRADITIONAL

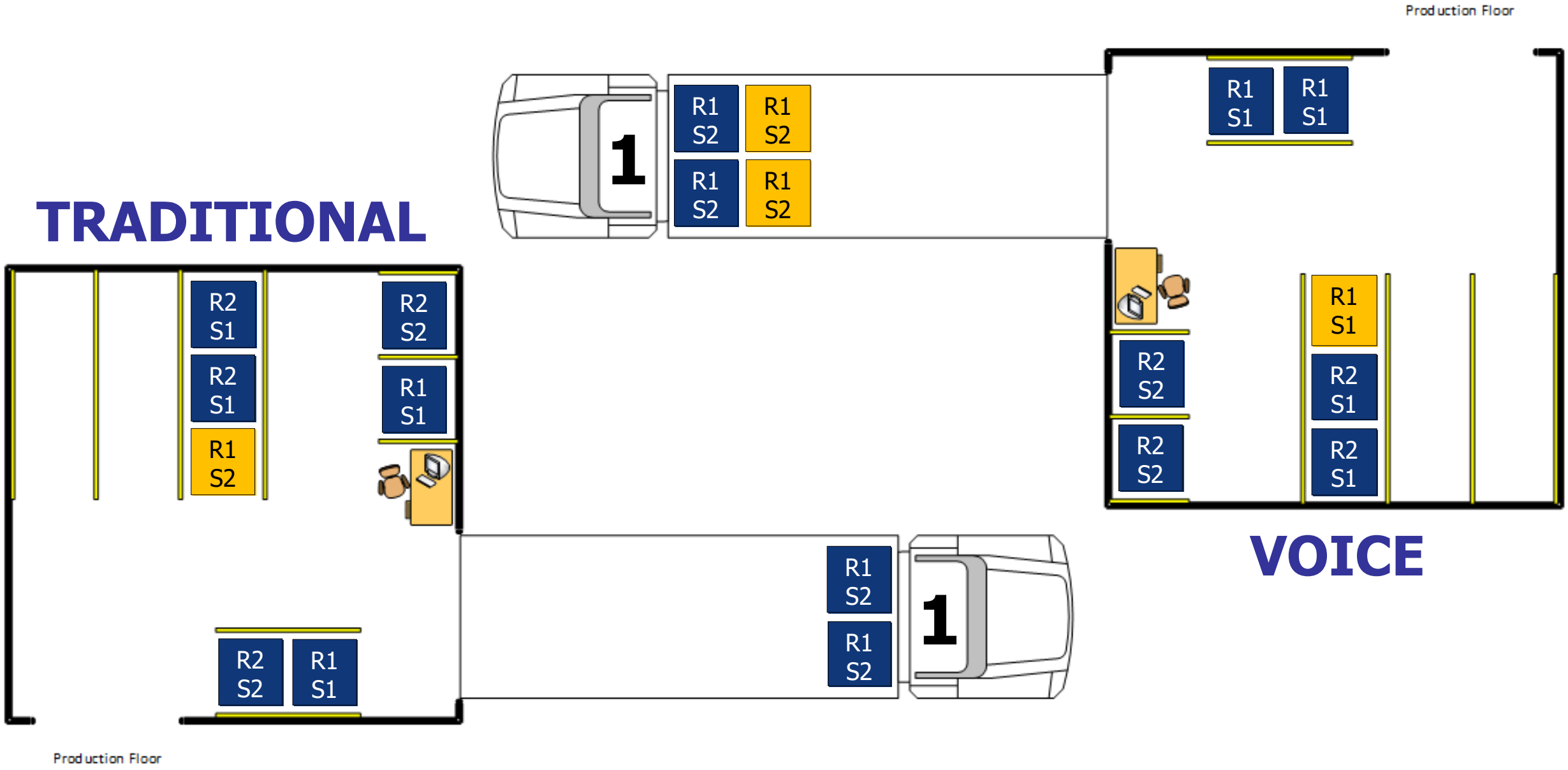


Production Floor

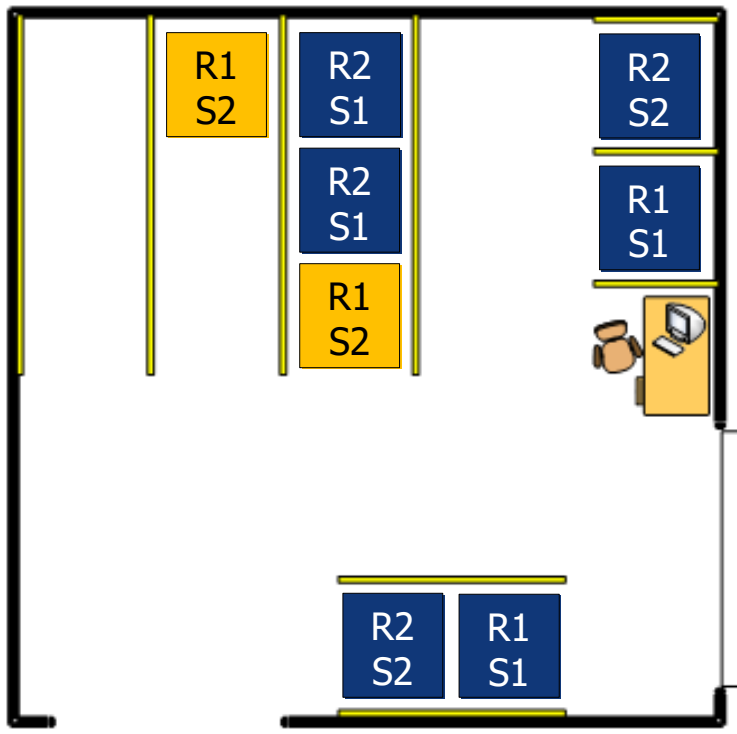
VOICE

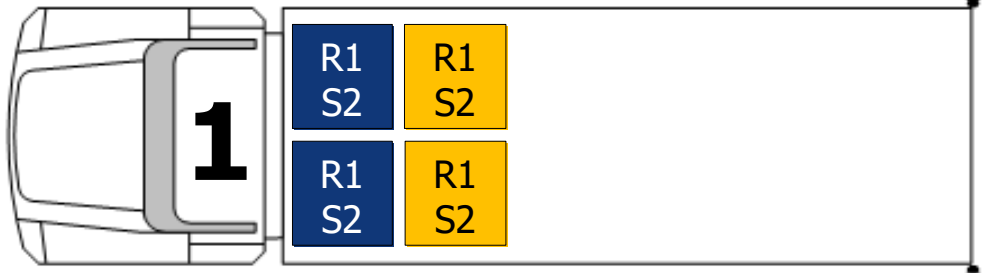


Production Floor


Production Floor
TRADITIONAL
R1 S2
R1 S2
R1 S2
R1 S2
1
R1 S1
R1 S1
R2 S1
R2 S1
R2 S2
R2 S2
R1 S1
R2 S2
R2 S2
R1 S1
R2 S1
R2 S1
R1 S2
R1 S2
1
R2 S2
R1 S1
VOICE
Production Floor

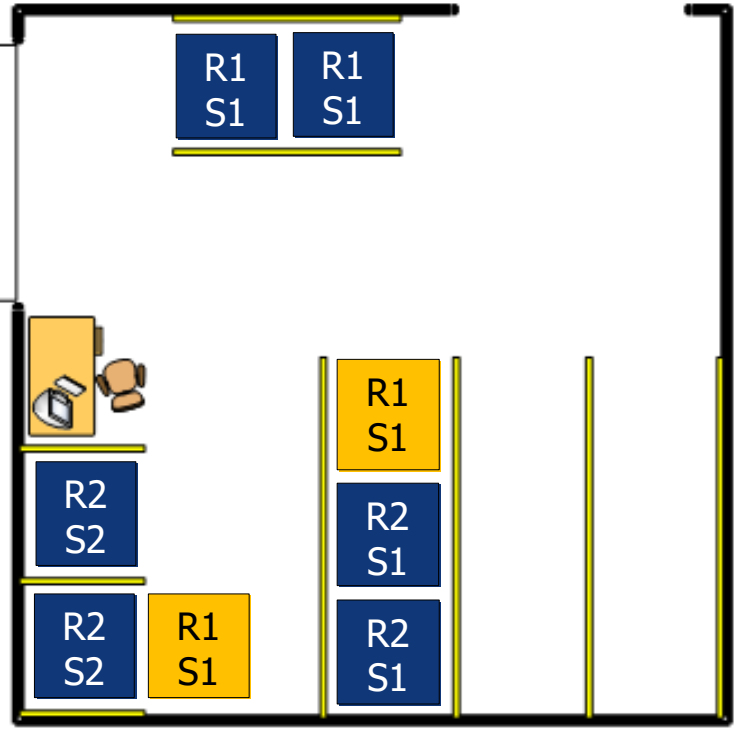
TRADITIONAL



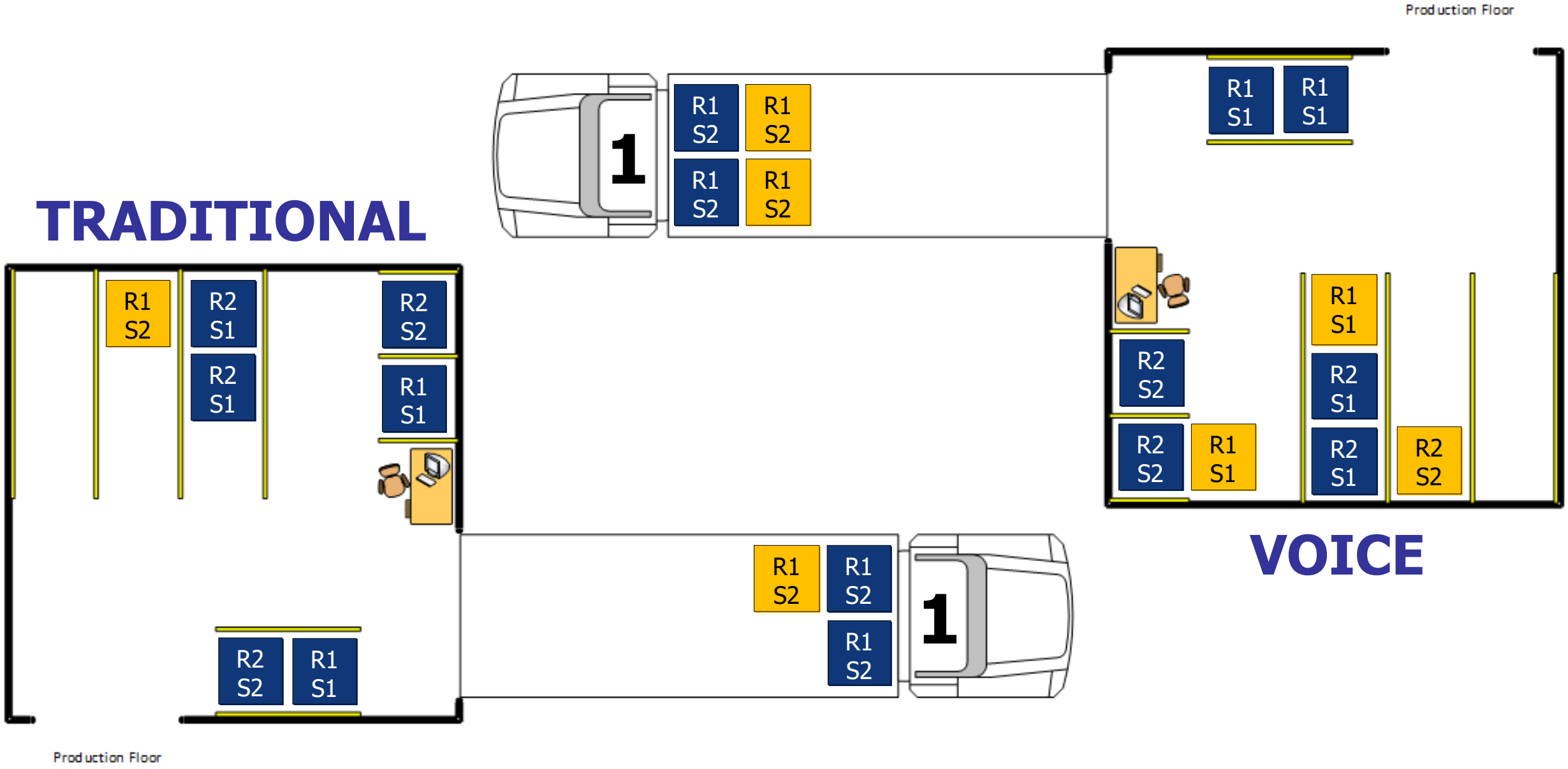


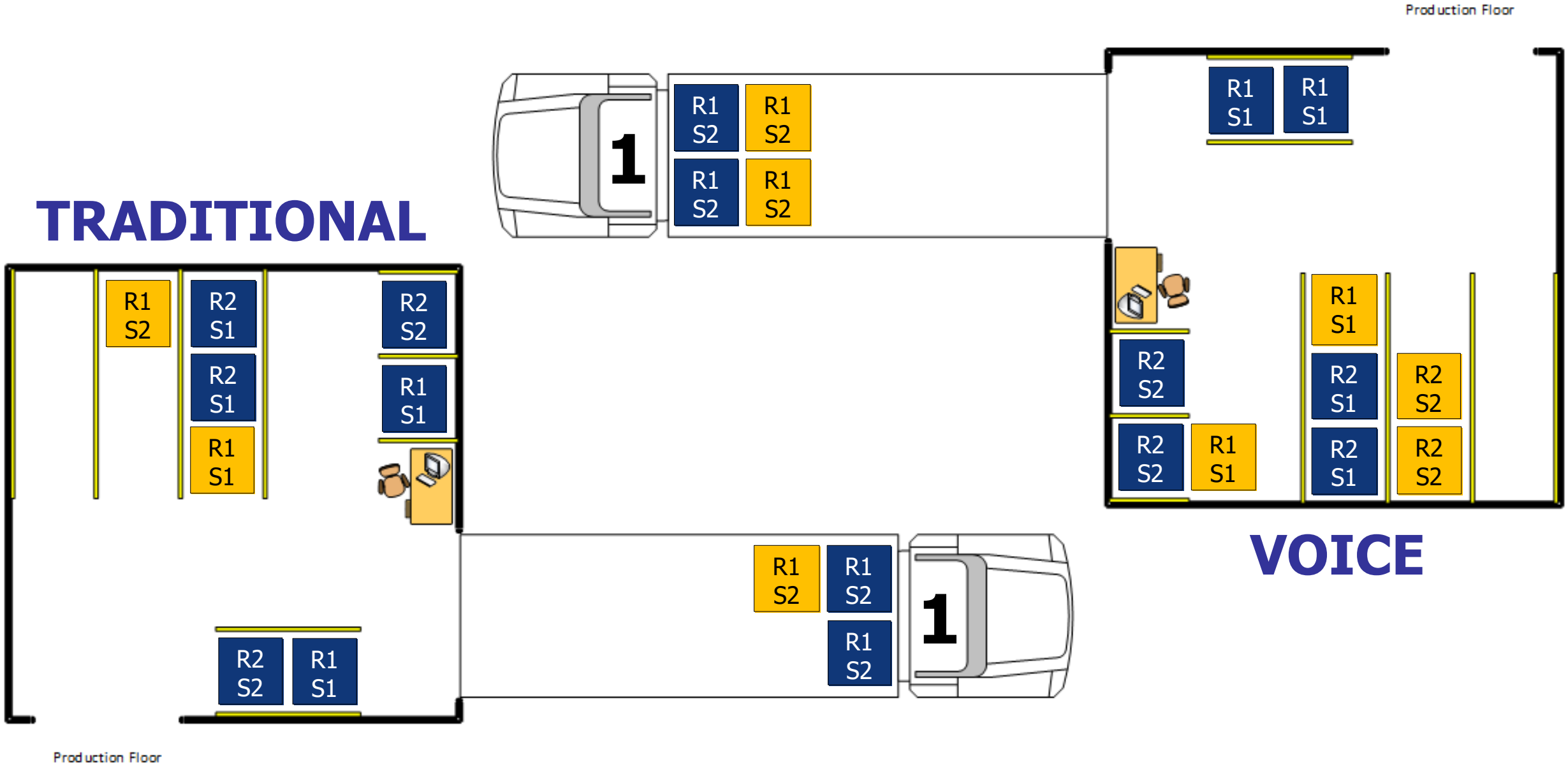
Production Floor

Production Floor

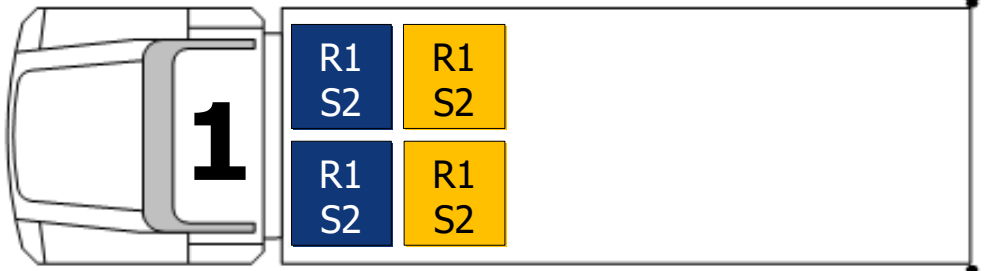


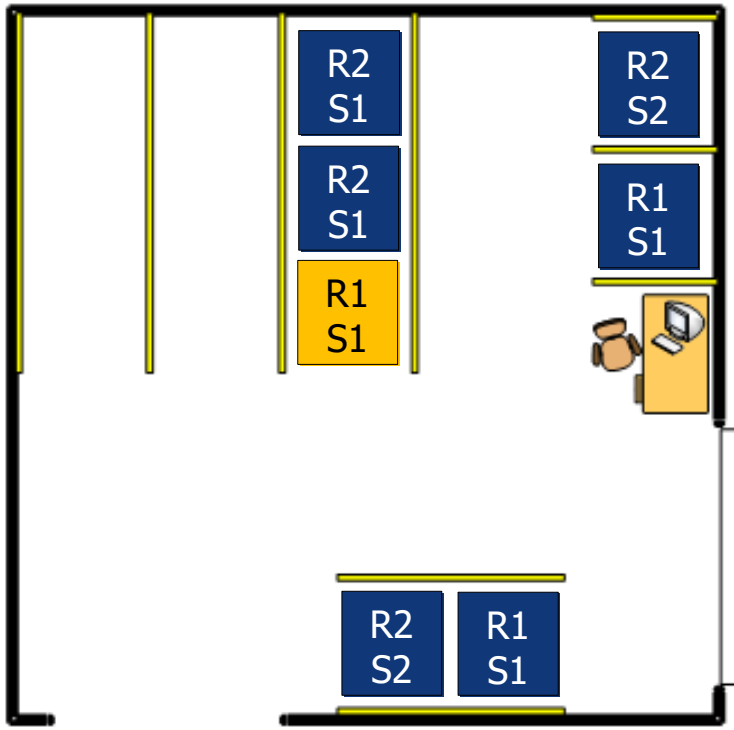
VOICE

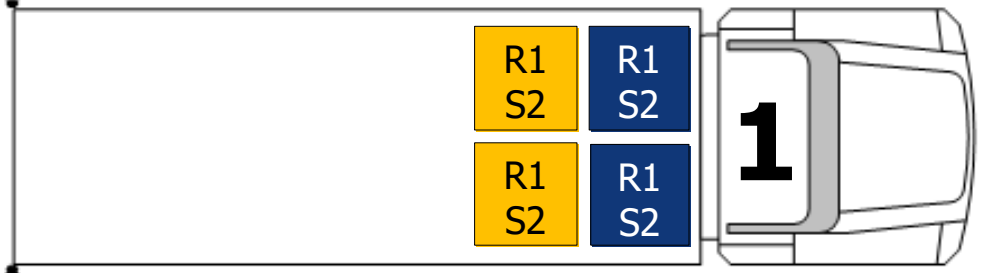

Production Floor
TRADITIONAL
R1 S2
R2 S1
R2 S1
R2 S2
R1 S1
R2 S2
R1 S1
1
R1 S2
R1 S2
R1 S2
R1 S2
R1 S2
R1 S2
R1 S2
1
R1 S1
R1 S1
R2 S2
R2 S2
R1 S1
R1 S1
R2 S1
R2 S1
R2 S2
VOICE
Production Floor

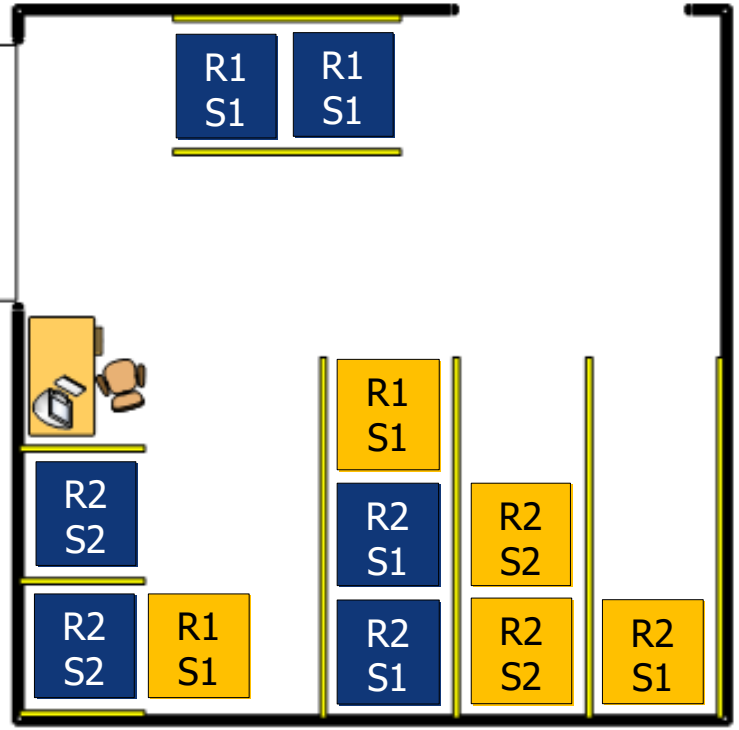

Production Floor
TRADITIONAL
R1 S2
R2 S1
R2 S1
R1 S1
R2 S2
R1 S1
R2 S2
R1 S1
1
R1 S2
R1 S2
R1 S2
R1 S2
R1 S2
R1 S2
R1 S2
1
R1 S1
R1 S1
R1 S1
R2 S2
R2 S2
R1 S1
R2 S1
R2 S1
R2 S2
R2 S2
VOICE
Production Floor

TRADITIONAL



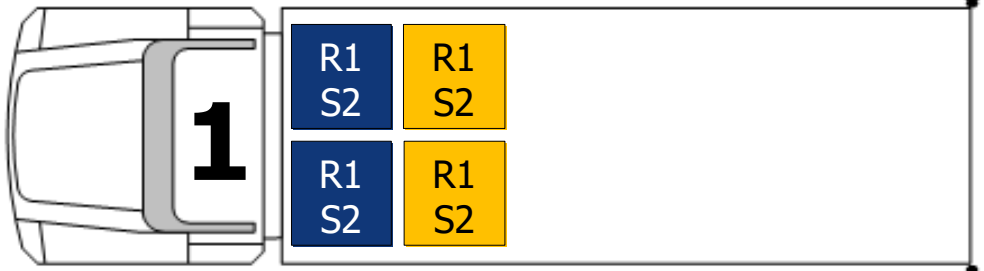


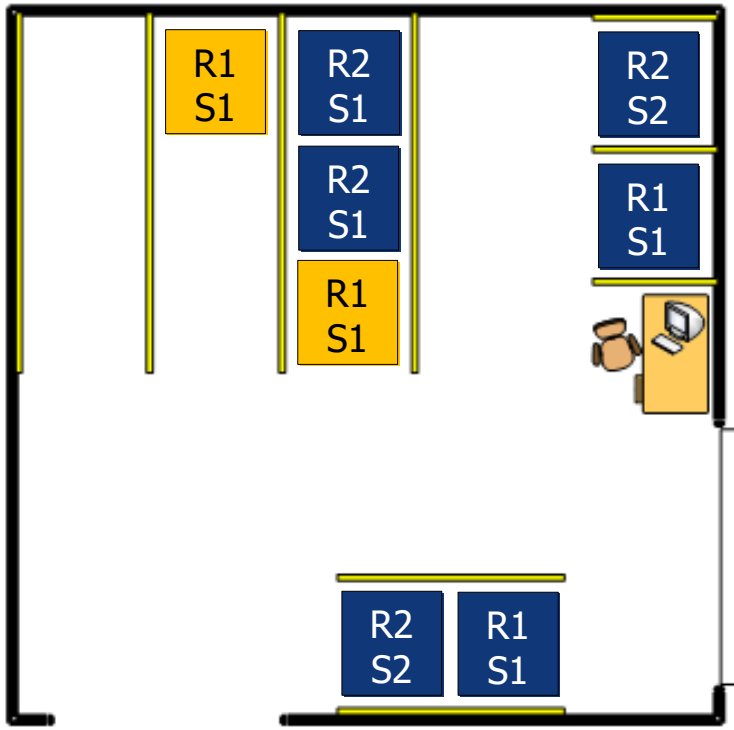


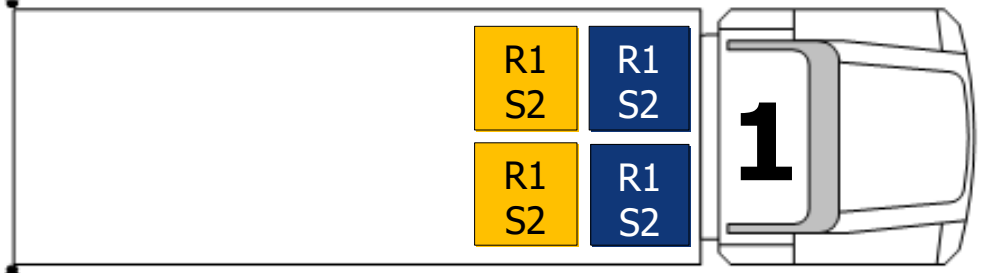


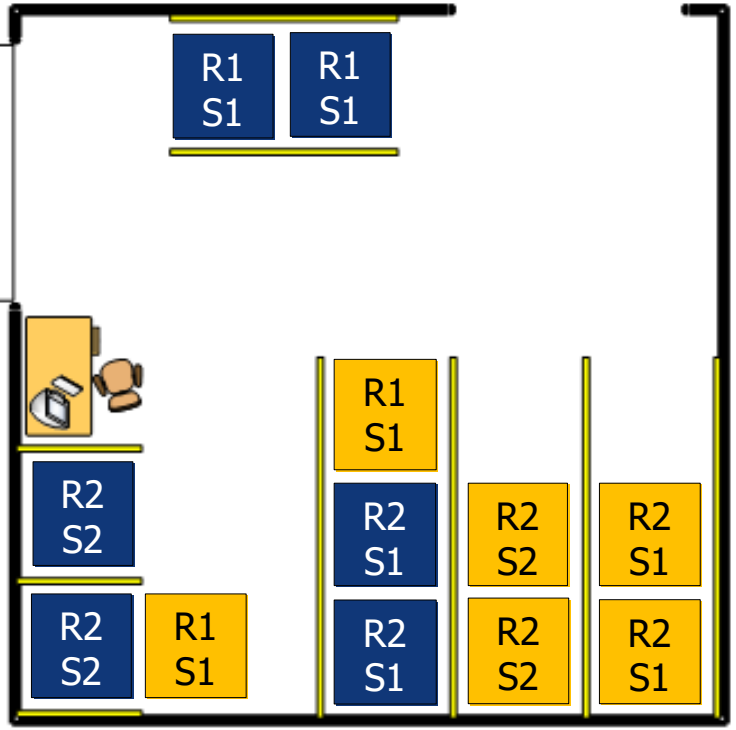
VOICE

TRADITIONAL



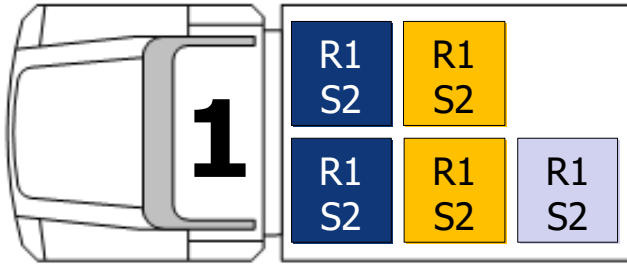


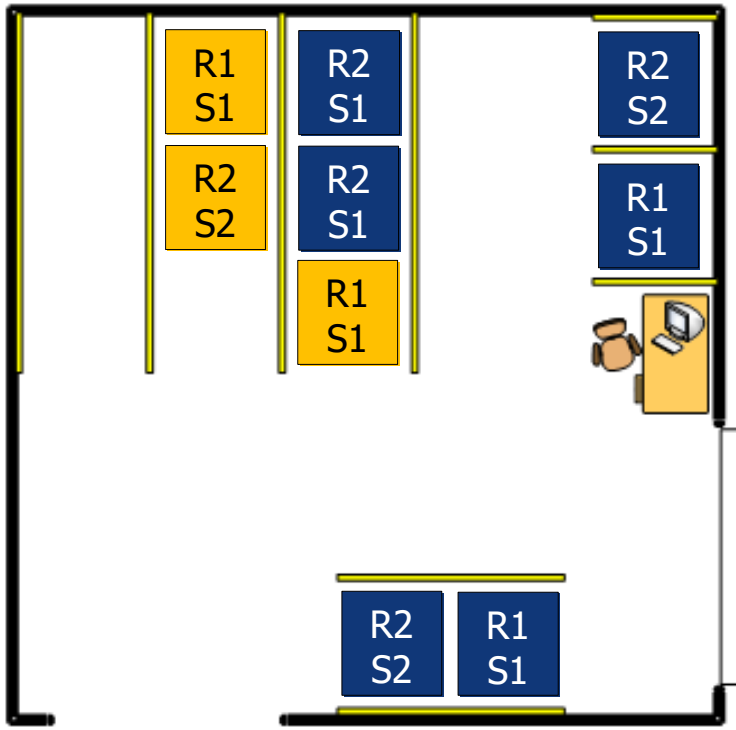


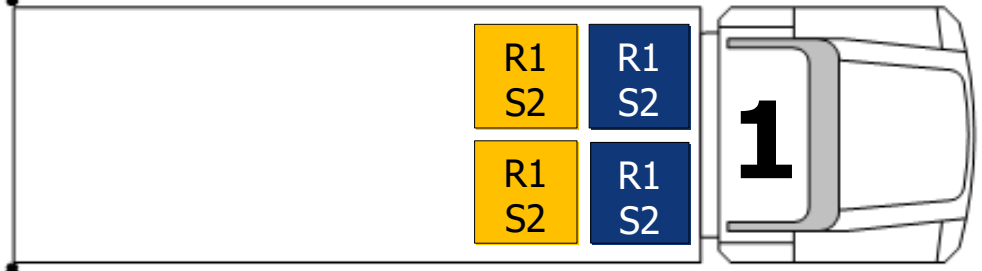


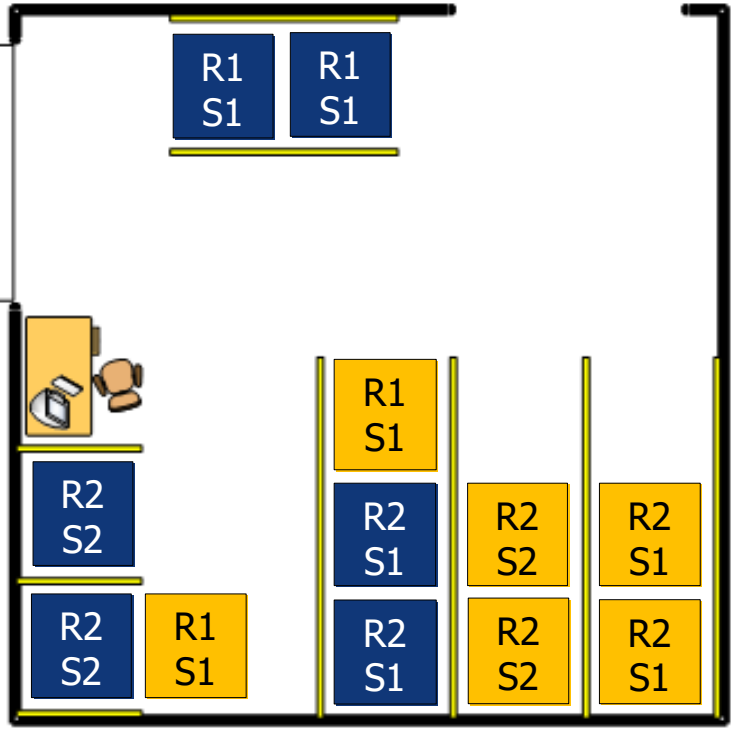
VOICE

TRADITIONAL



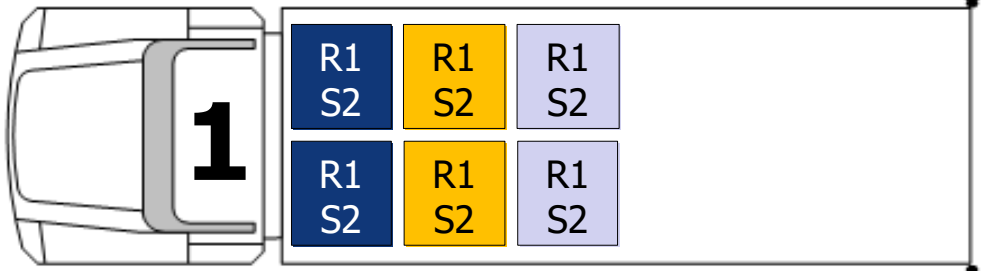


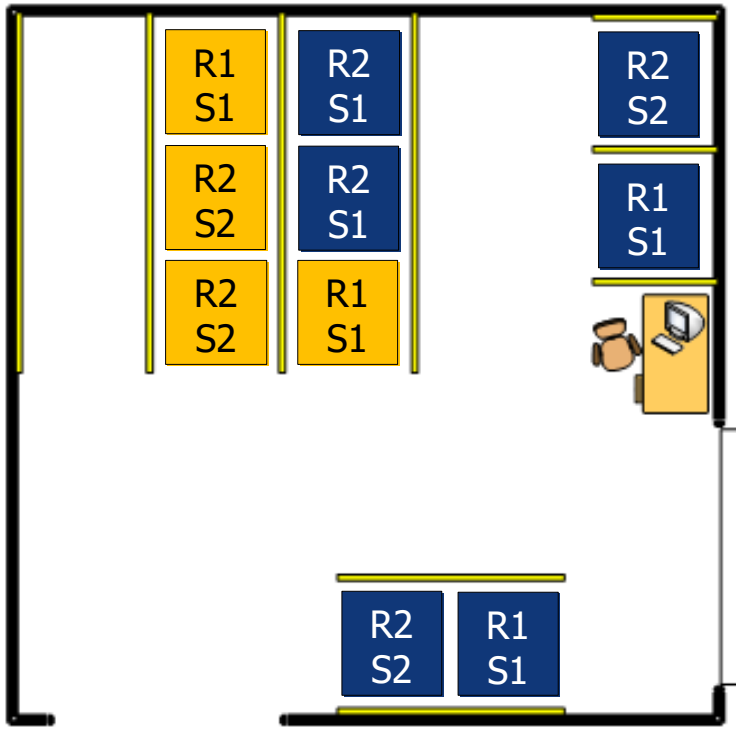


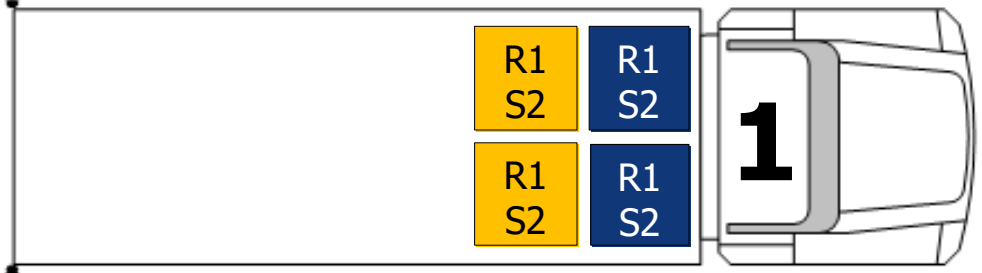


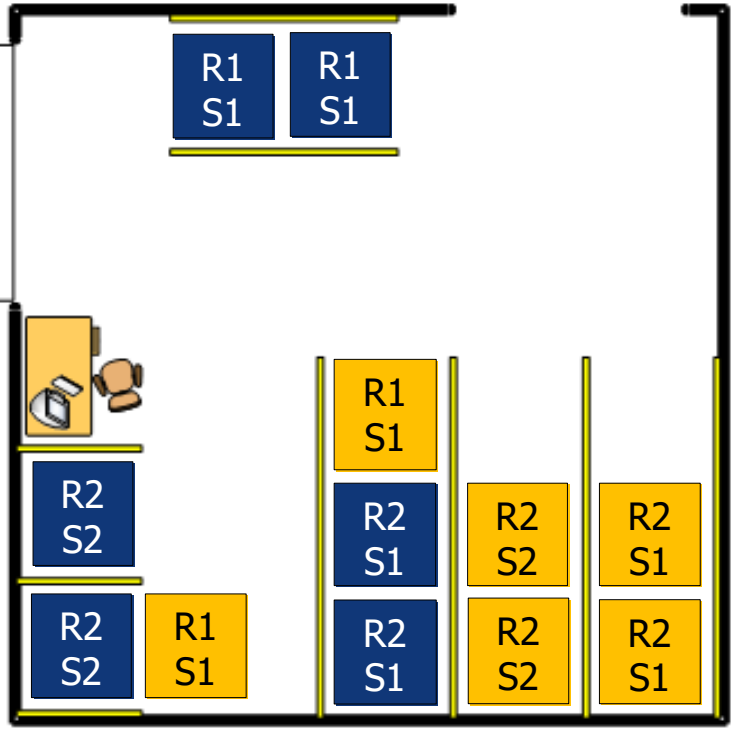
VOICE

TRADITIONAL



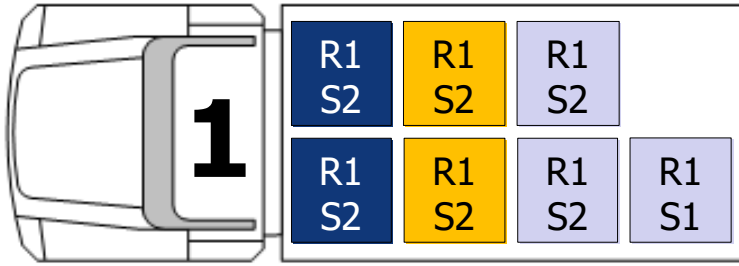


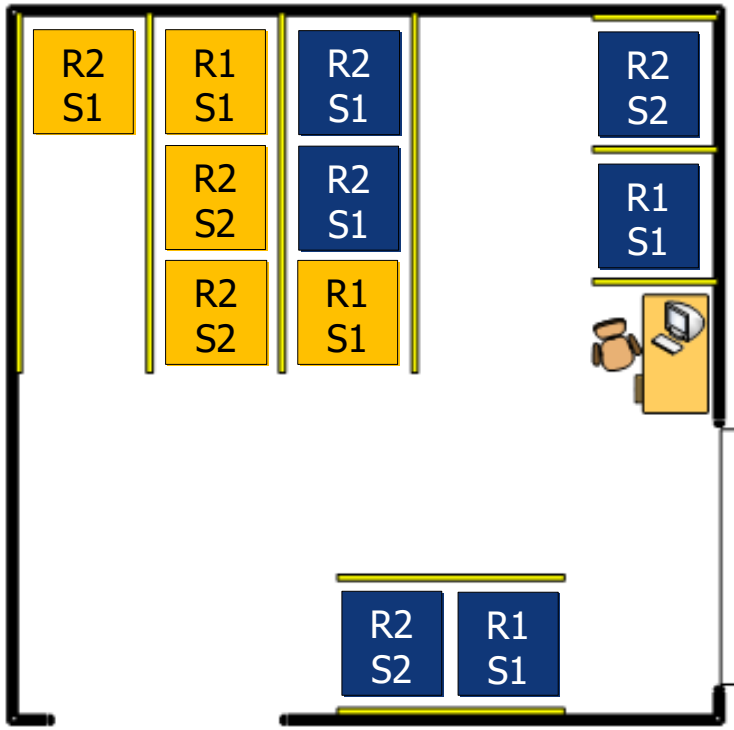


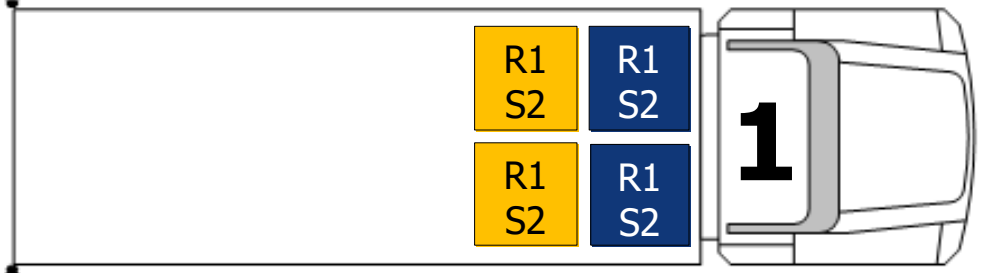


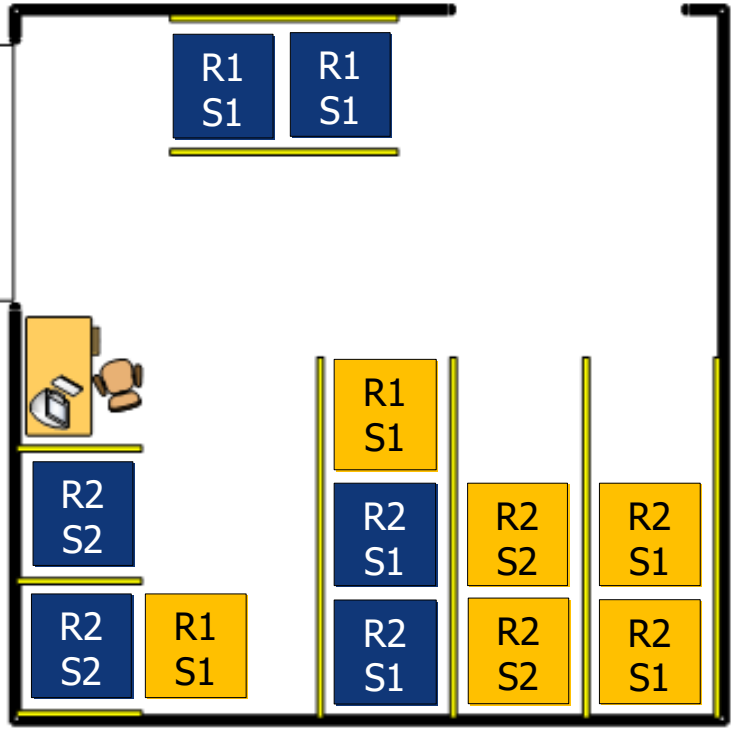
VOICE

TRADITIONAL



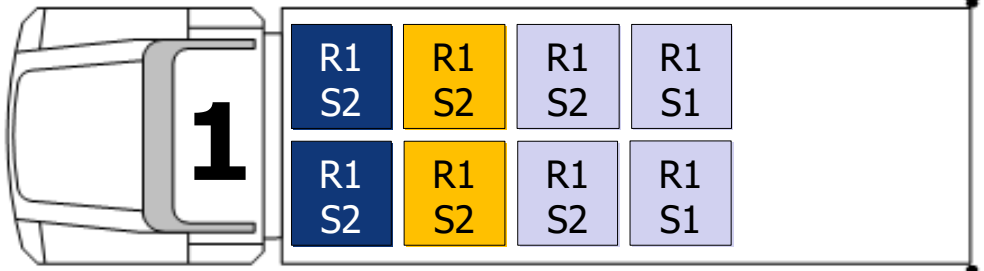


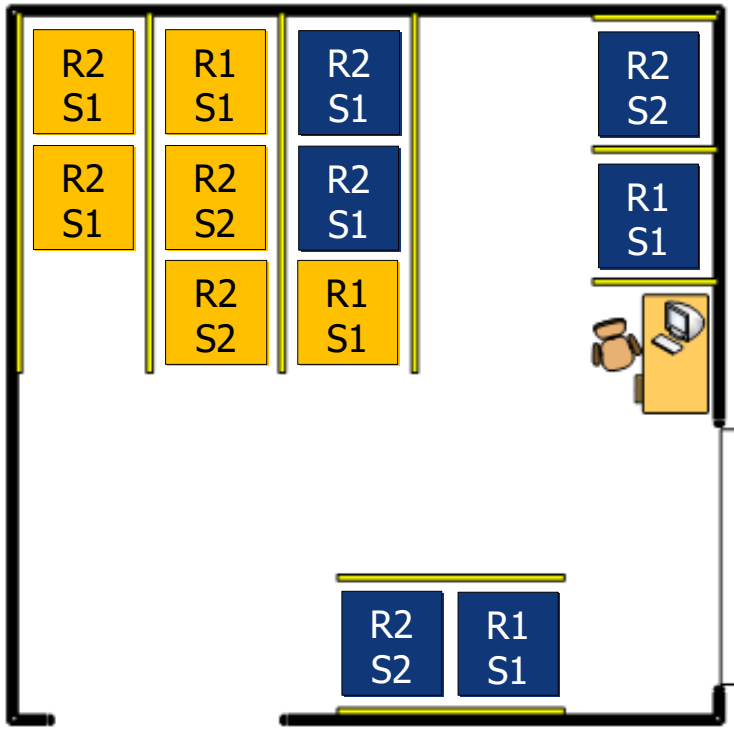


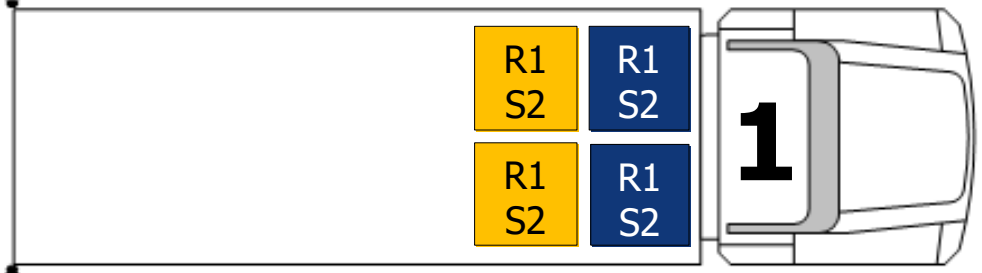


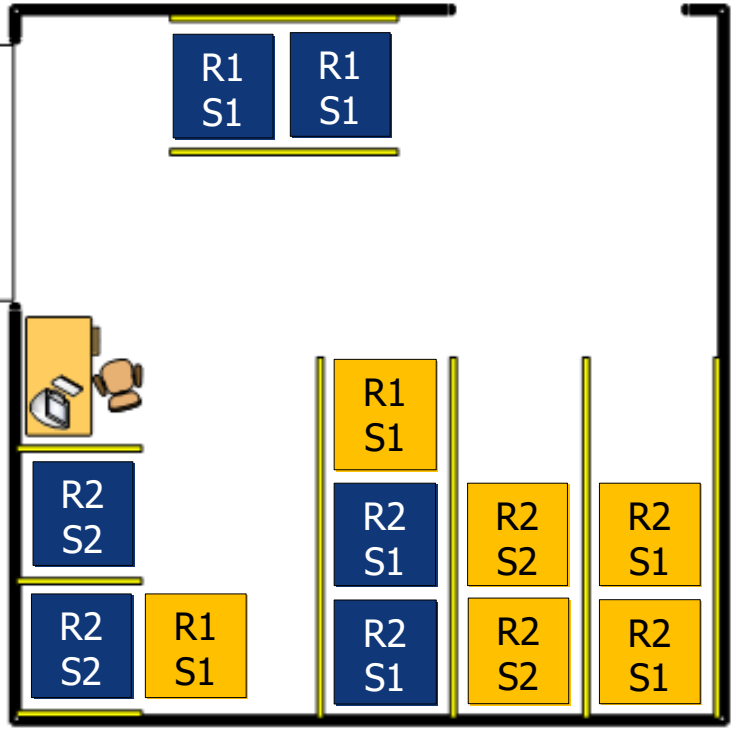
VOICE

TRADITIONAL





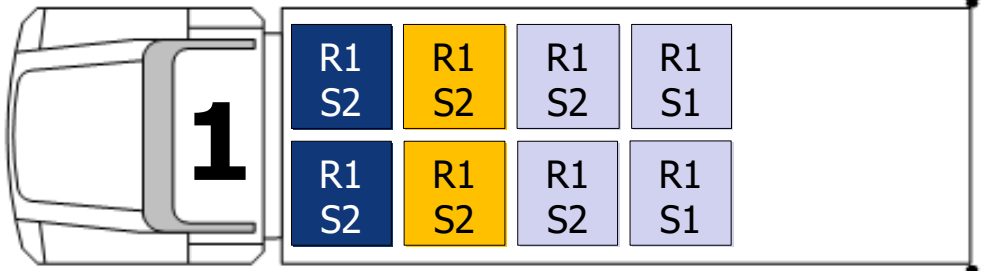


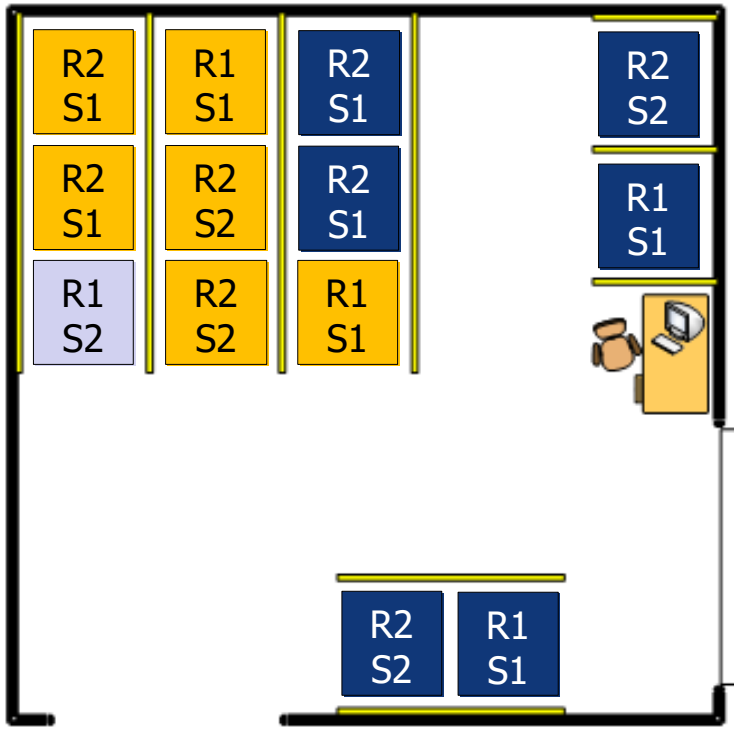


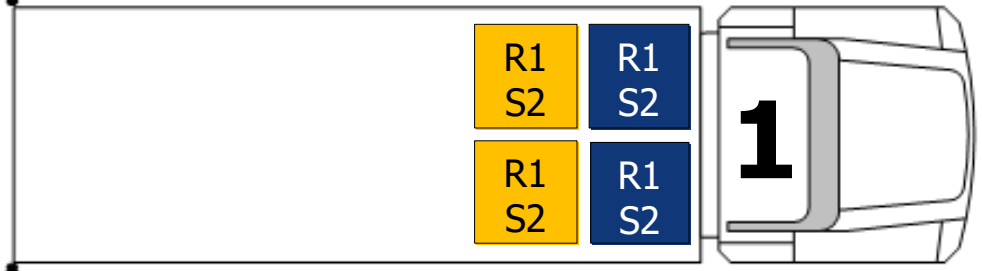
VOICE

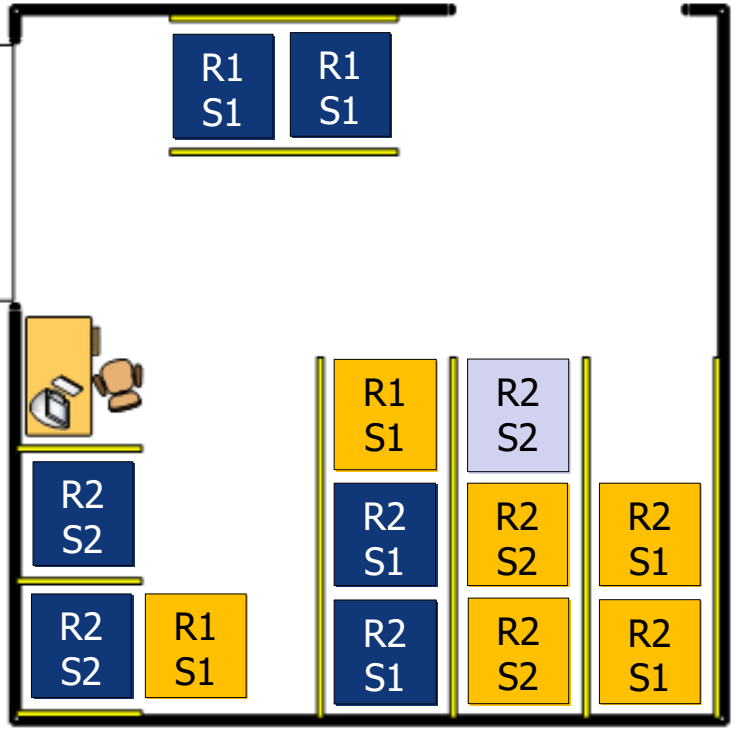
Production Floor

TRADITIONAL



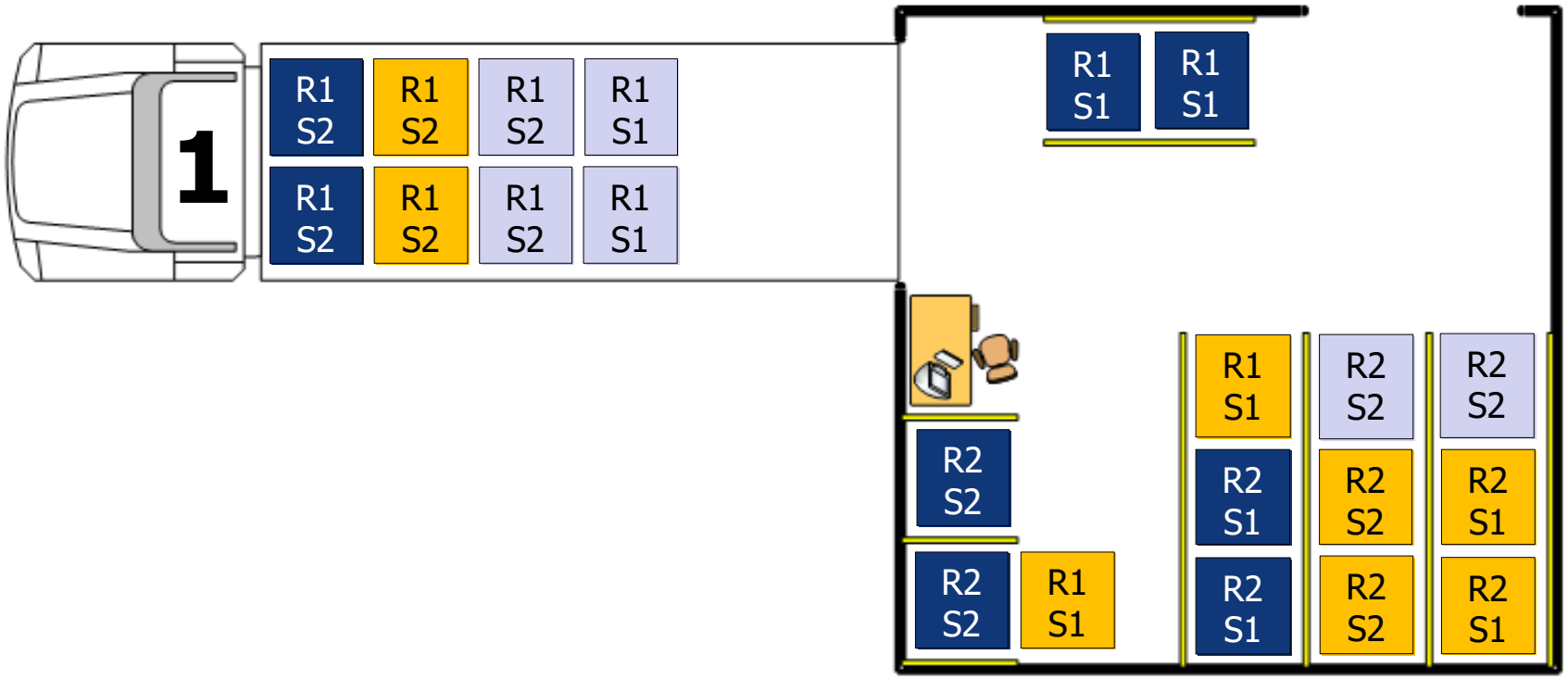




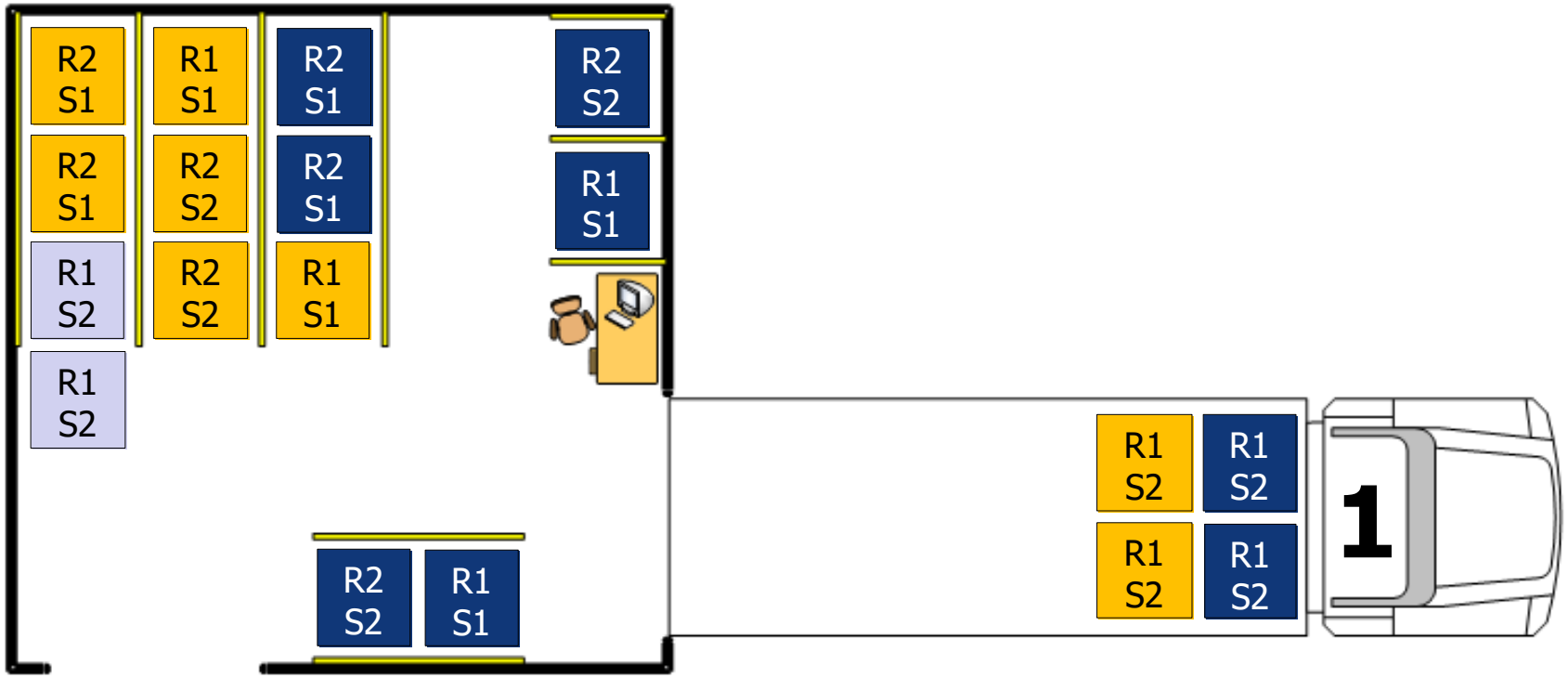


VOICE

Production Floor

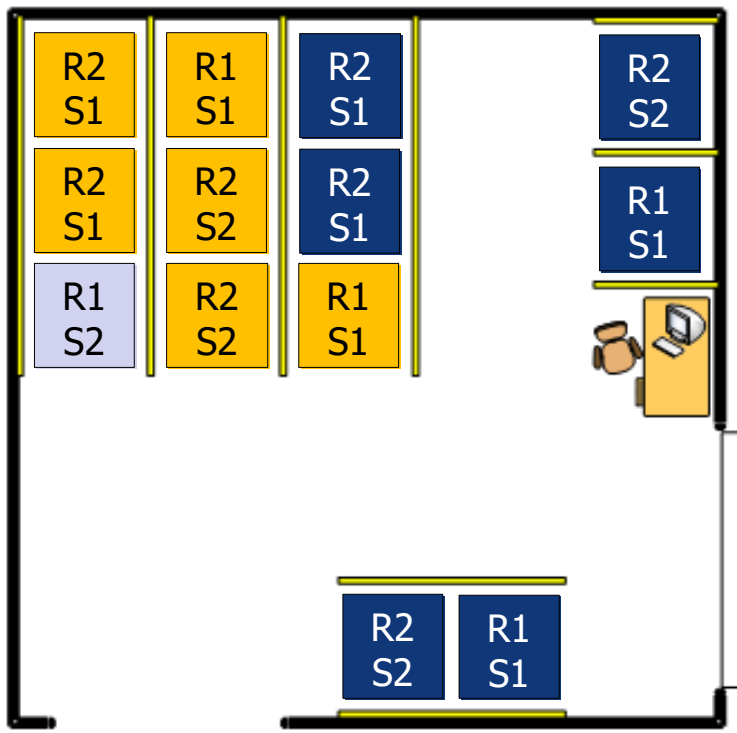


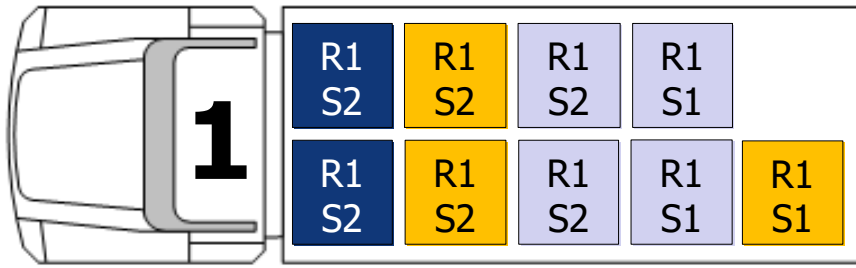
TRADITIONAL

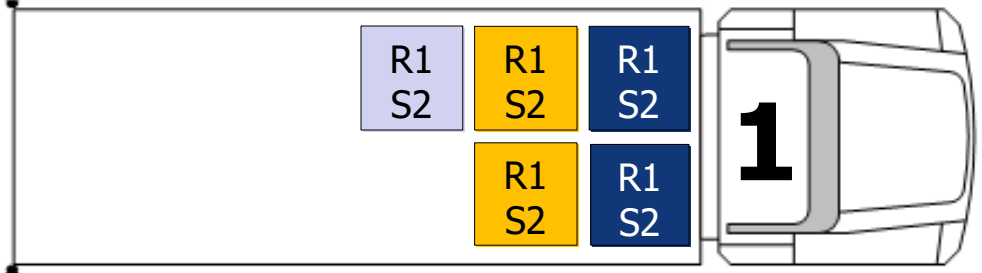


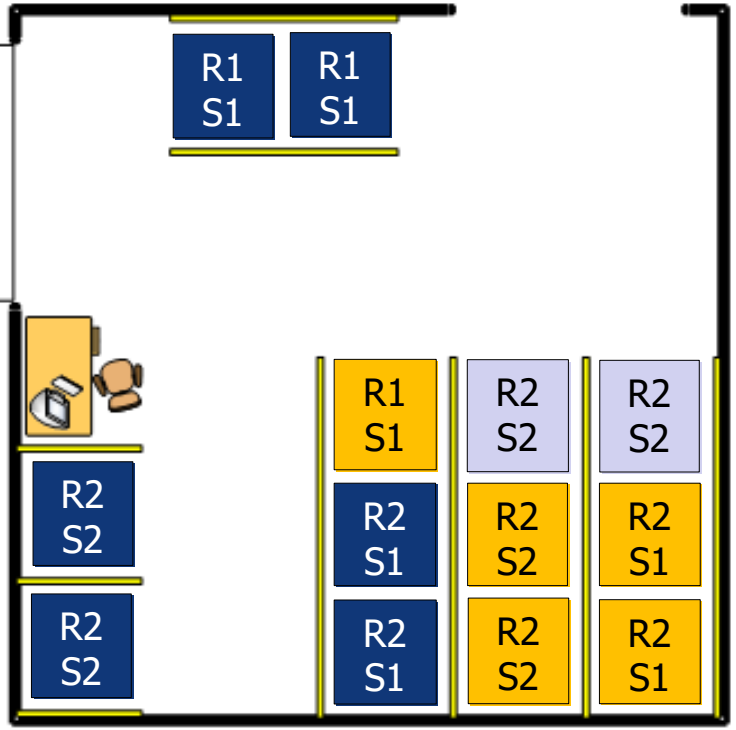
VOICE

TRADITIONAL

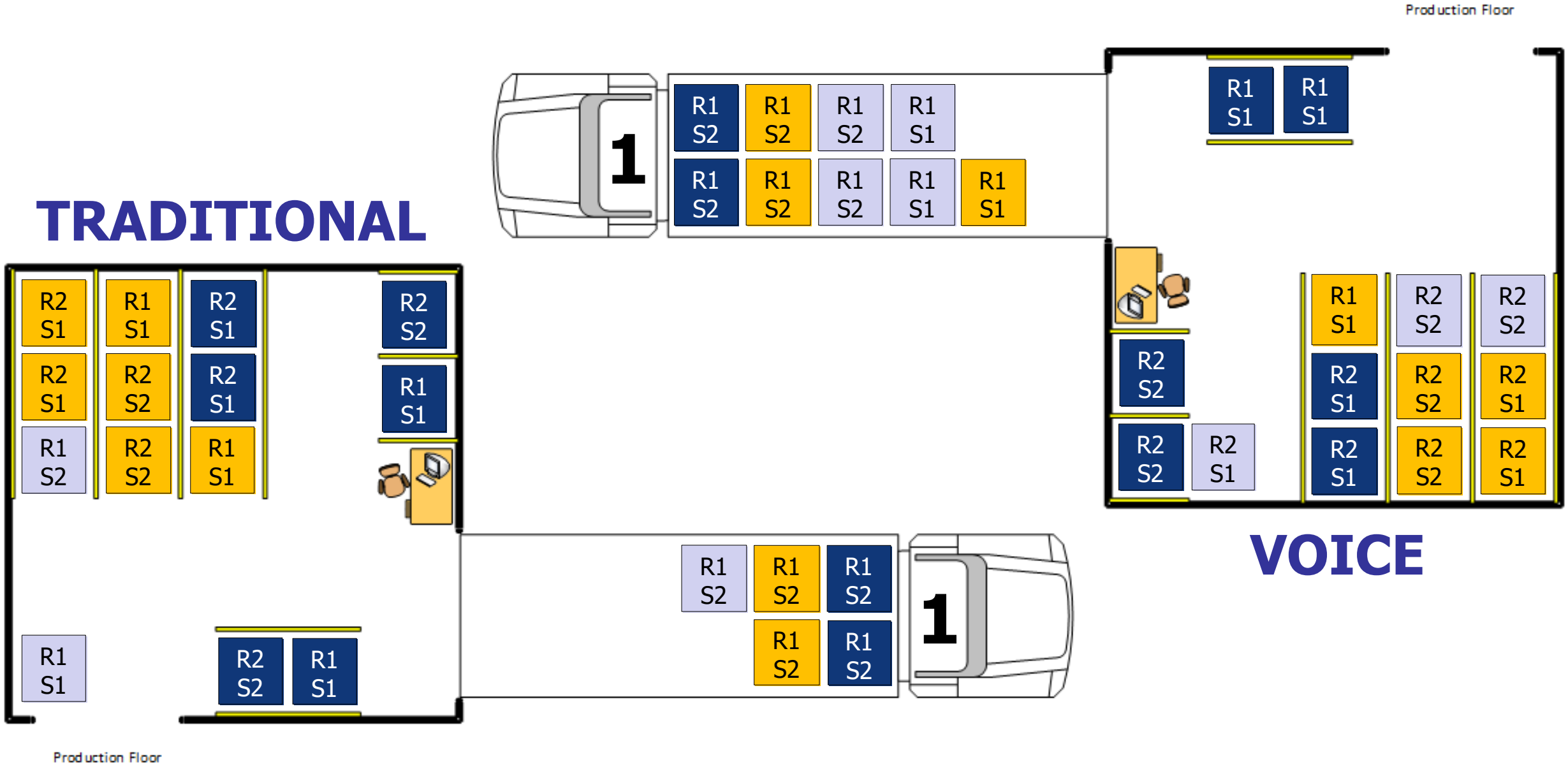


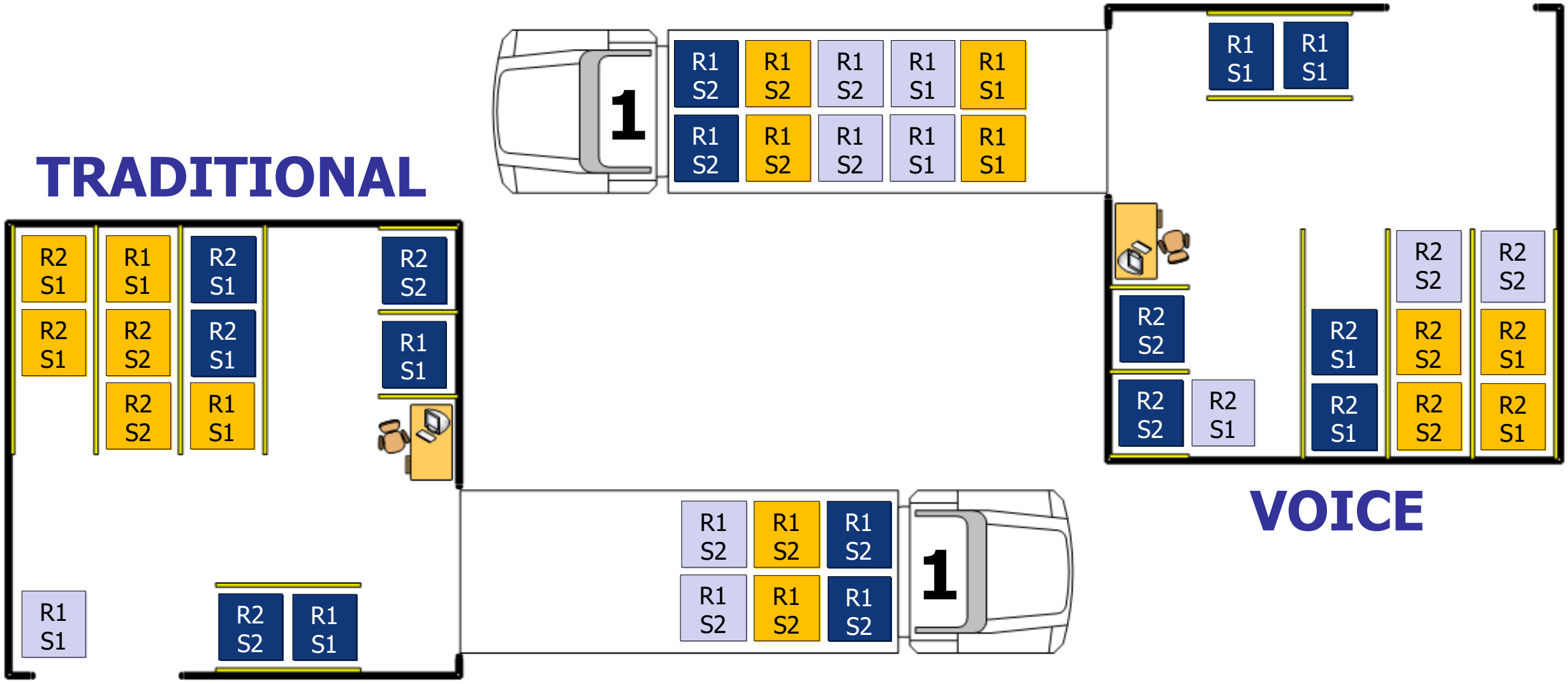




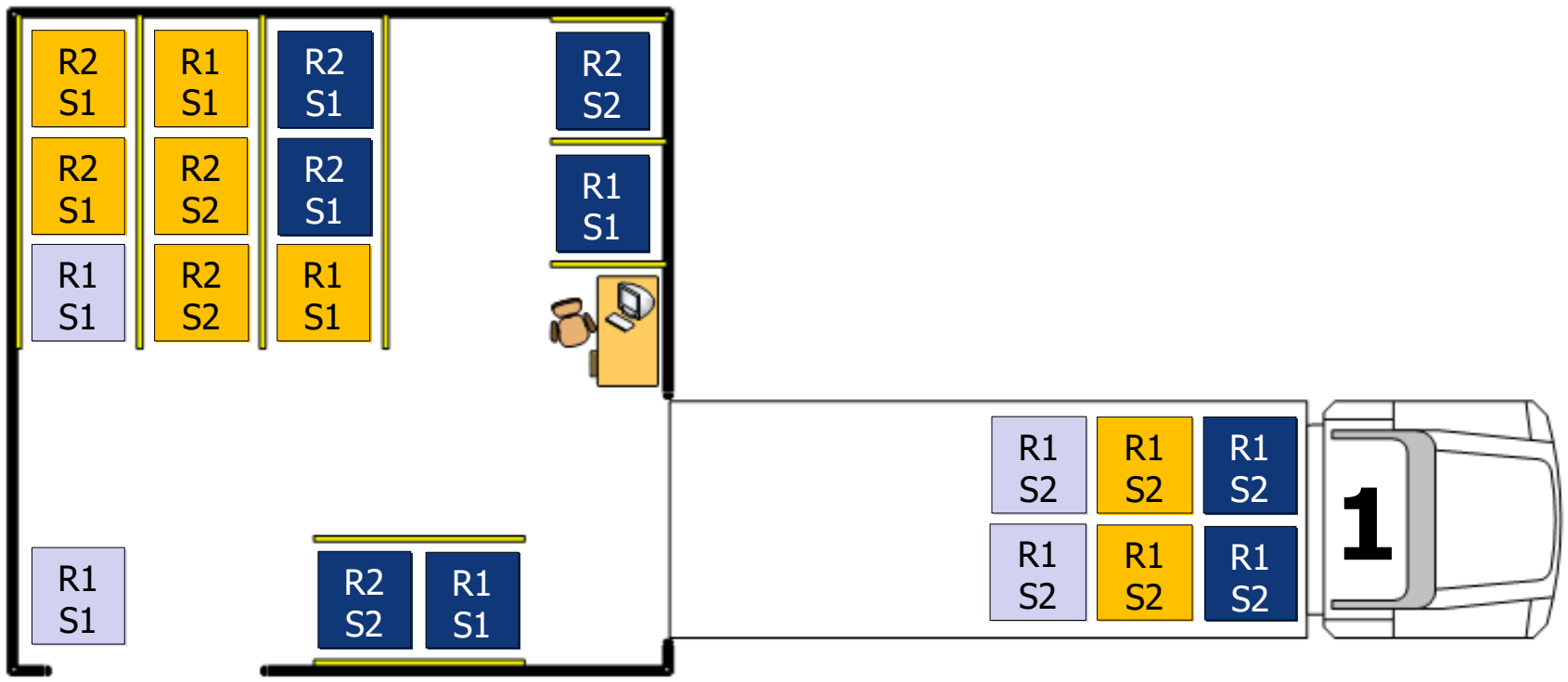


VOICE

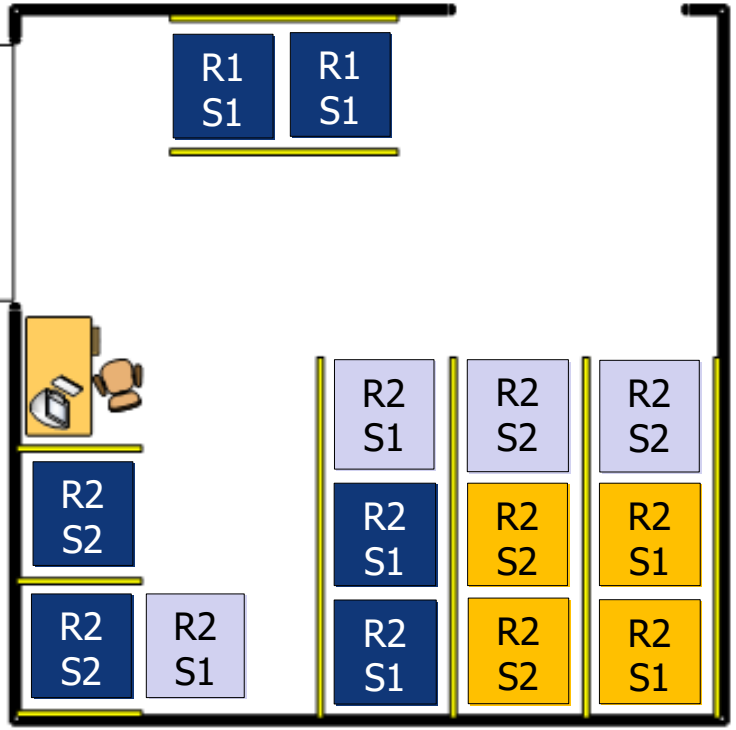

Production Floor
TRADITIONAL
VOICE
1
R1 S2
R1 S1
R2 S1
R2 S2
Production Floor

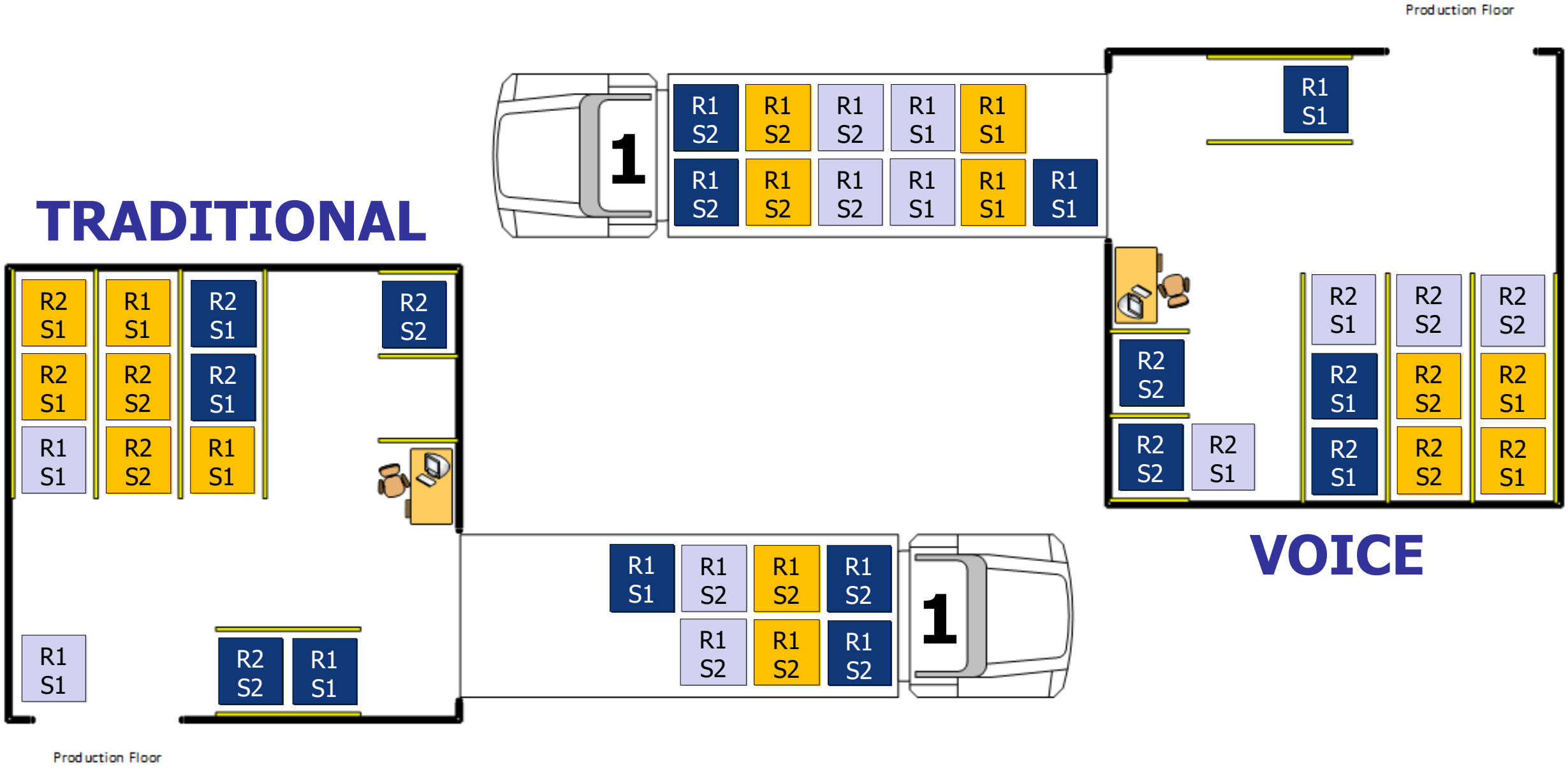

TRADITIONAL
1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S1
R2 S1
R1 S1
R2 S1
R2 S2
R2 S1
R2 S2
R2 S2
R1 S1
R1 S1
R2 S2
R1 S1
R1 S1
R2 S2
R1 S1
R2 S2
R2 S1
R2 S2
R2 S1
R2 S2
R2

TRADITIONAL



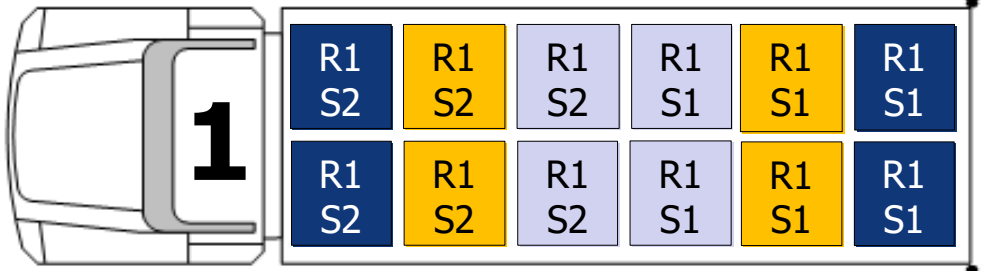
VOICE

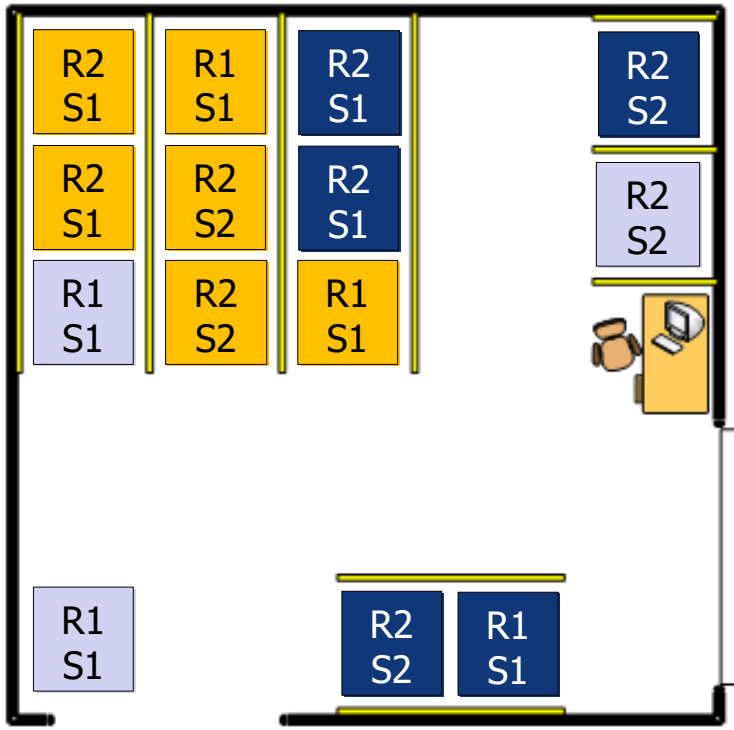


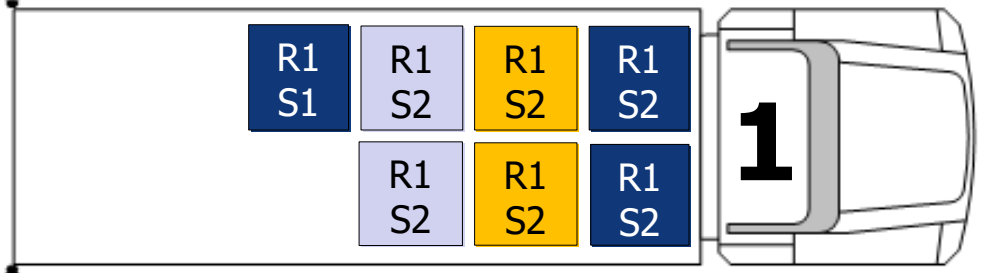

Production Floor
TRADITIONAL
VOICE
1
R1 S2
R1 S1
R2 S1
R2 S2
Production Floor

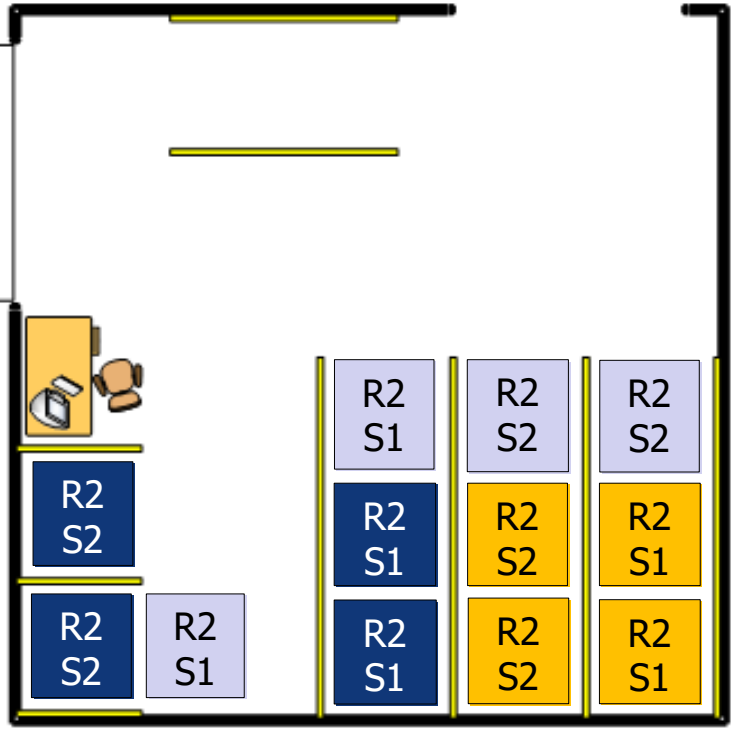
Production Floor

TRADITIONAL



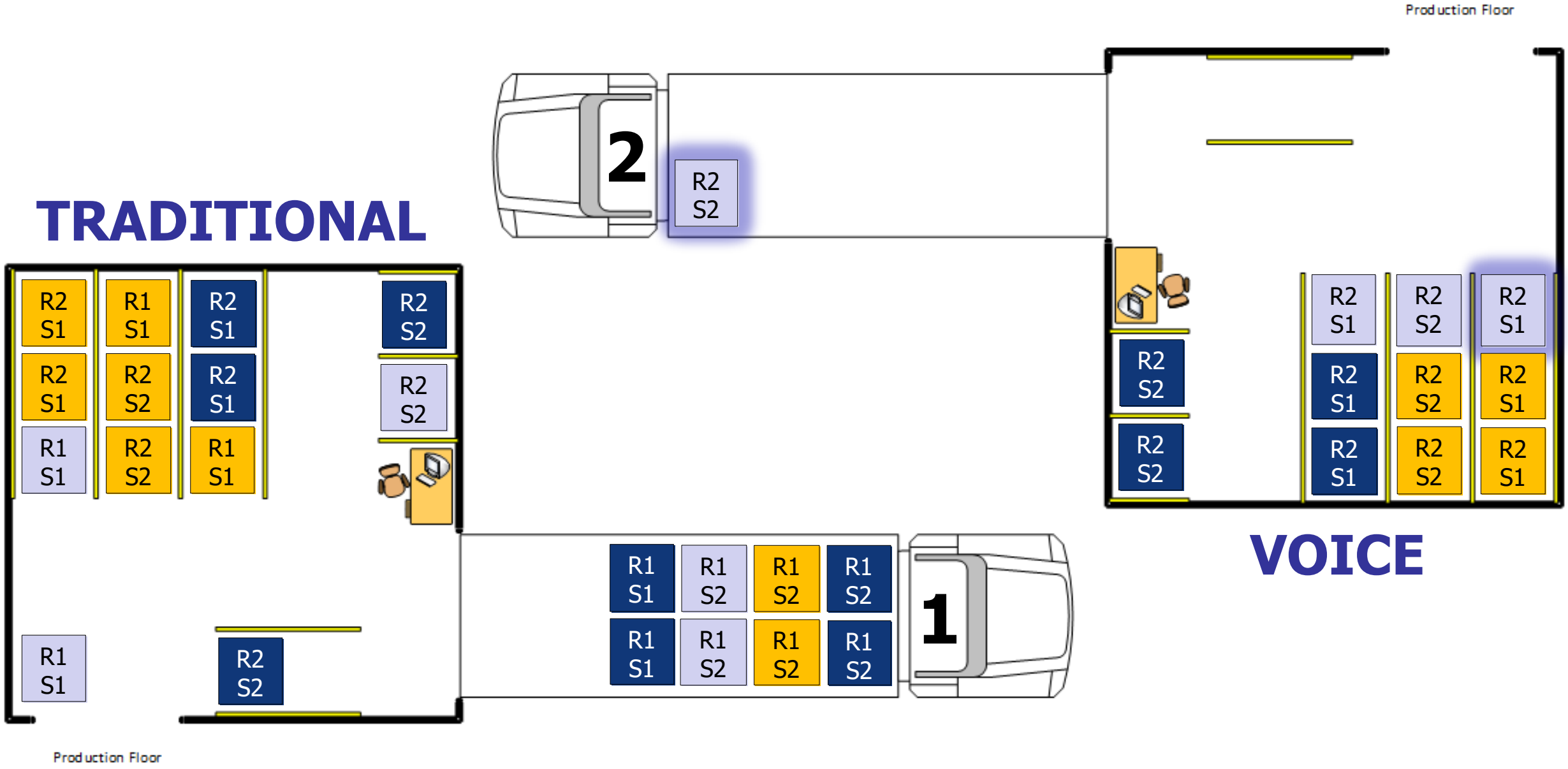


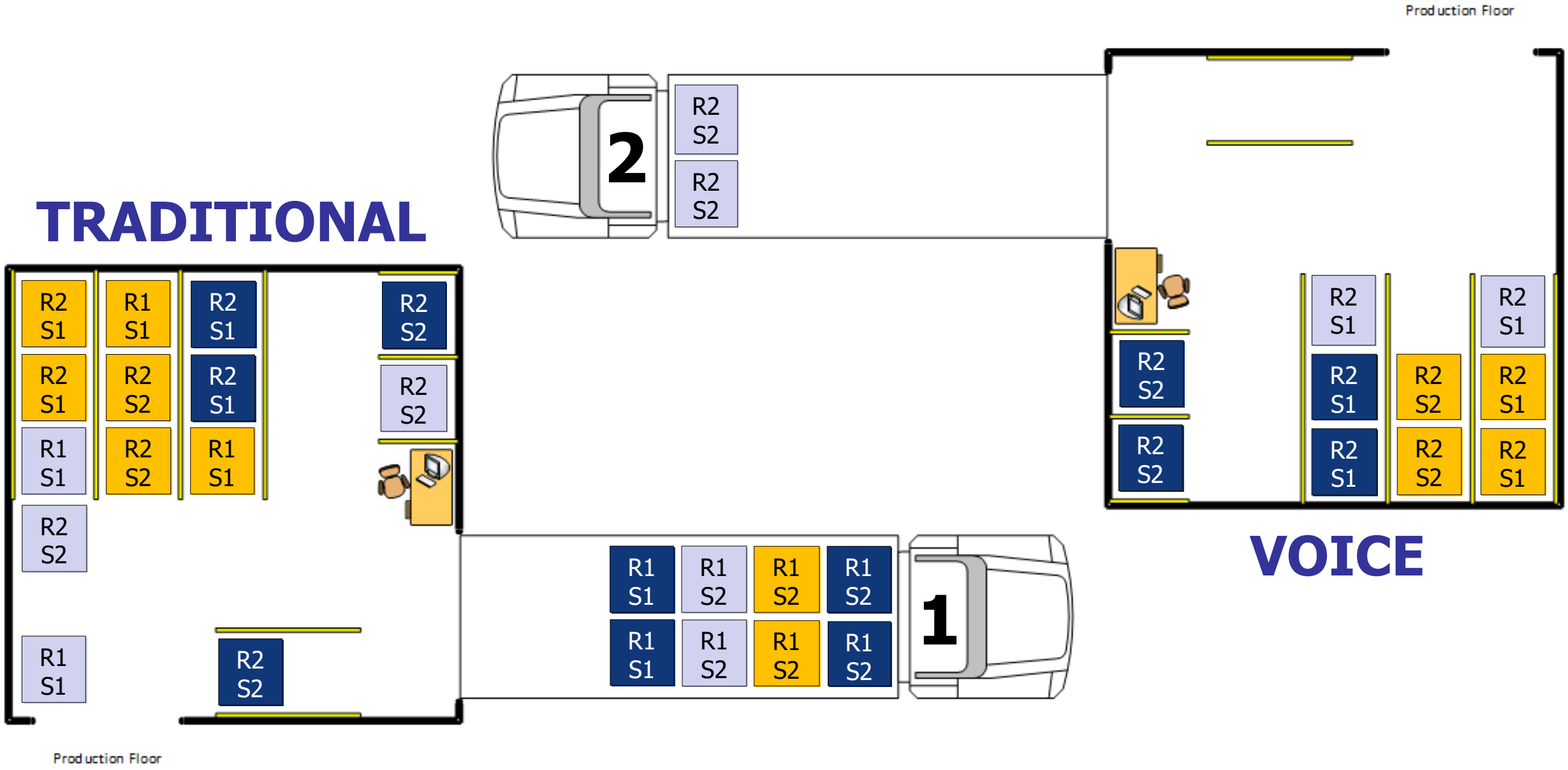


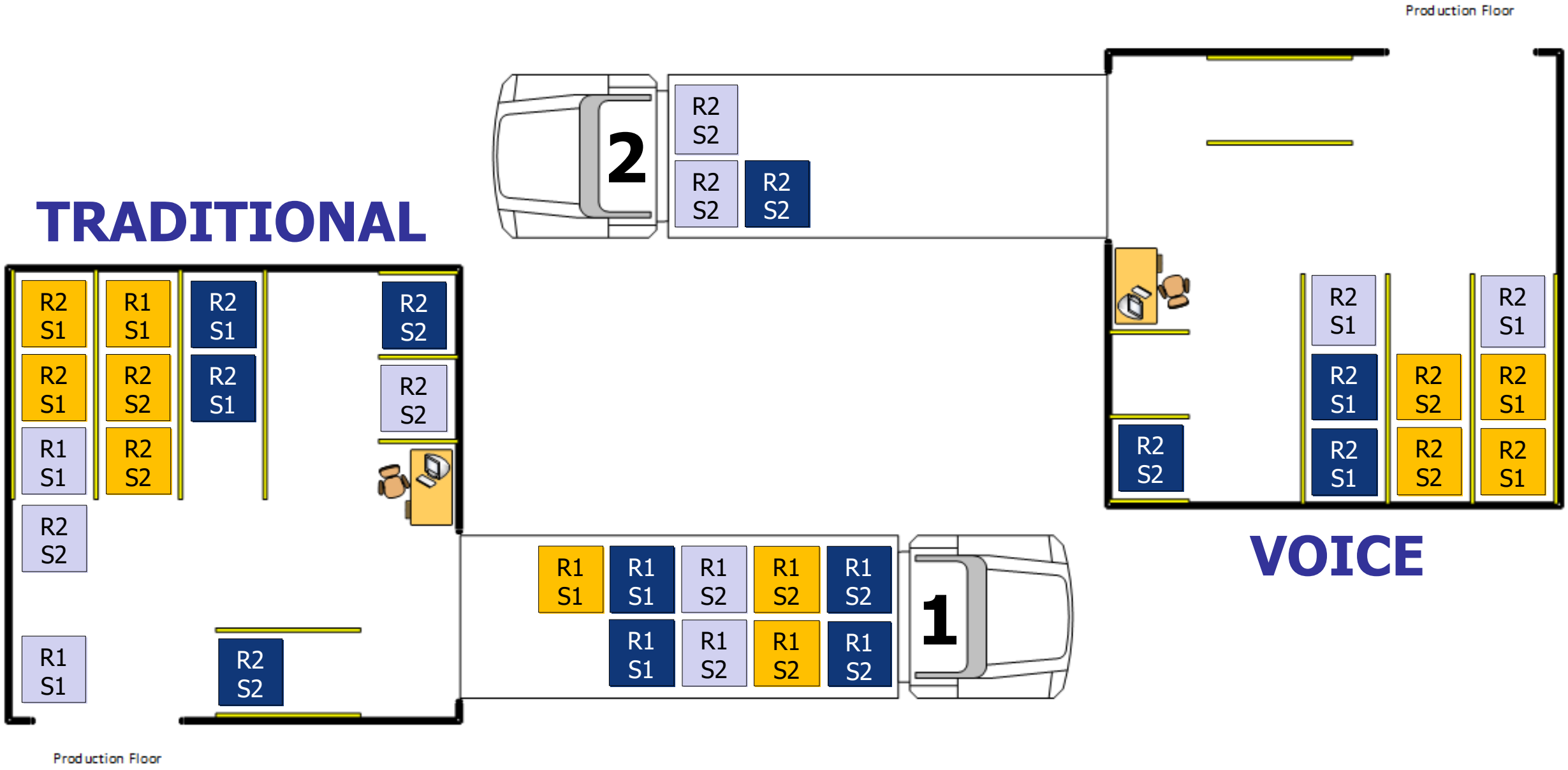


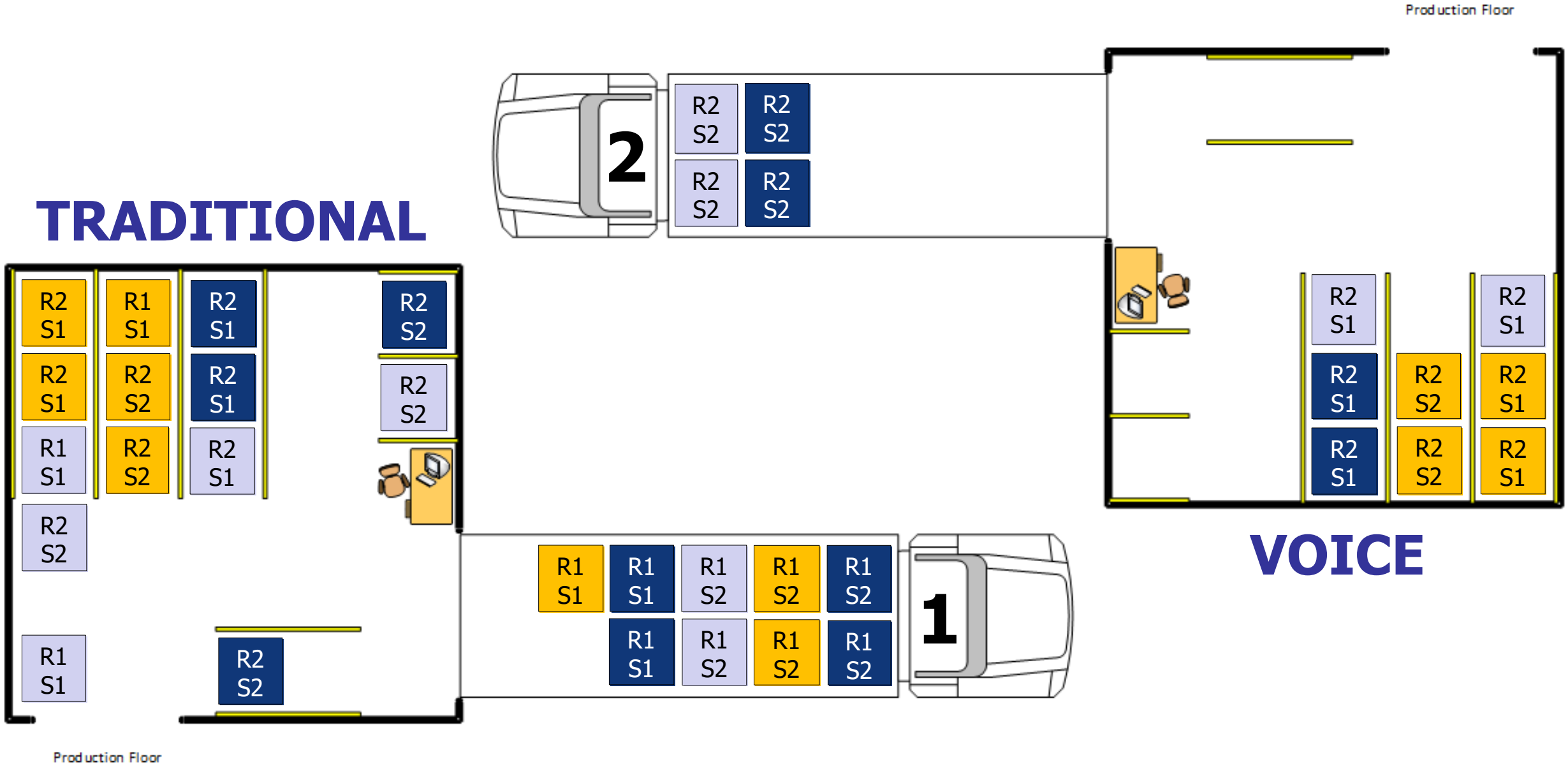
VOICE

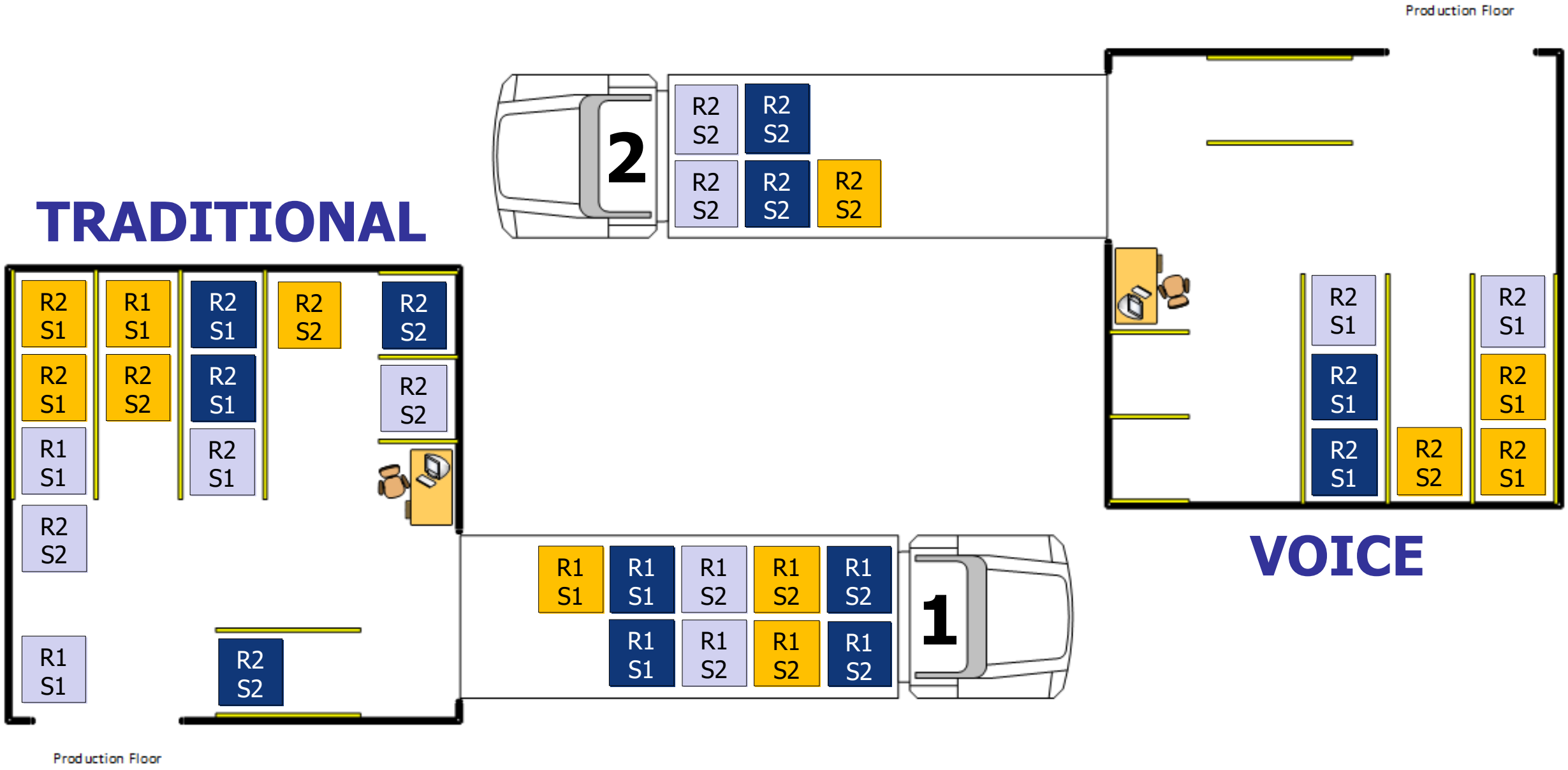
Production Floor

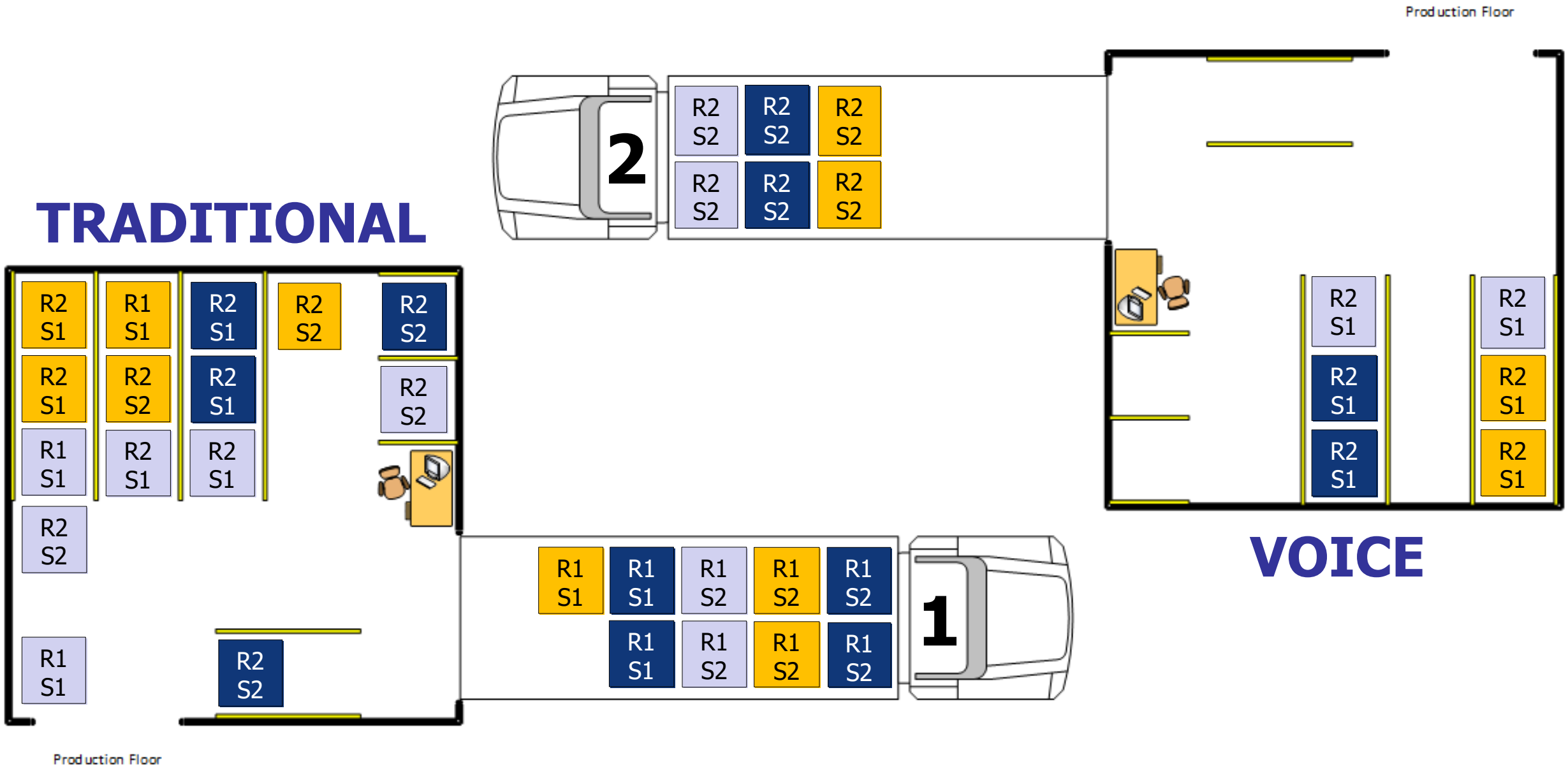

Production Floor
TRADITIONAL
2
R2 S2
R2 S1
R1 S1
R2 S1
R2 S2
R2 S1
R2 S2
R2 S1
R2 S2
R1 S1
R2 S2
R1 S1
R2 S2
R2 S2
R1 S1
R2 S2
R1 S1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S2
R1 S2
R1 S2
1
R2 S2
R2 S2
R2 S1
R2 S2
R2 S1
R2 S1
R2 S2
R2 S1
R2 S1
R2 S2
R2 S1
VOICE
Production Floor

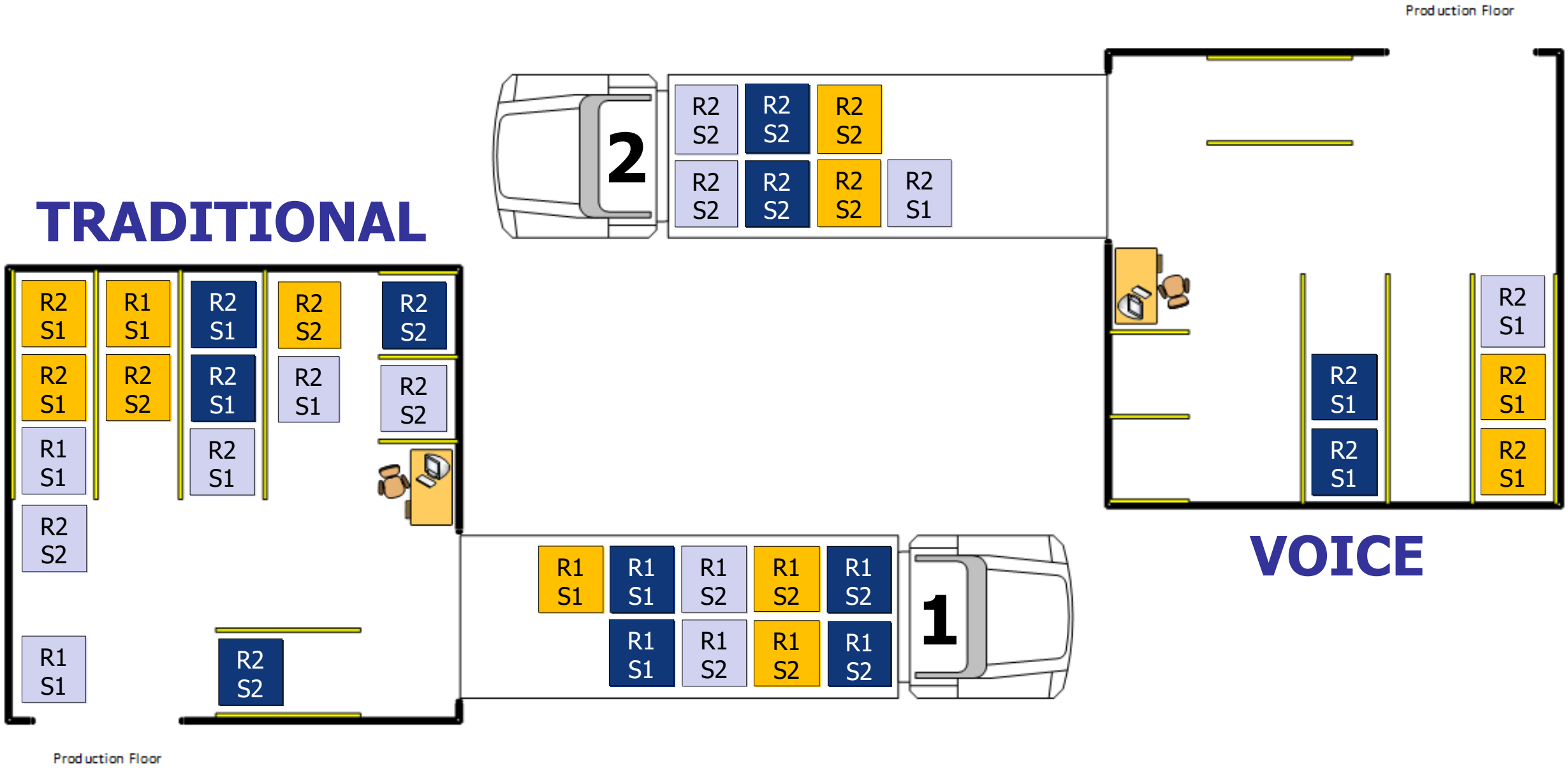

TRADITIONAL
R2 S1
R1 S1
R2 S1
R2 S2
R2 S1
R2 S2
R1 S1
R2 S2
R1 S1
R2 S2
R2 S2
R2 S2
R1 S1
R2 S2
R1 S1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S2
R1 S2
R1 S2
1
2
R2 S2
R2 S2
Production Floor
Production Floor
R2 S1
R2 S1
R2 S1
R2 S2
R2 S1
R2 S2
R2 S2
R2 S1
R2 S1
R2 S2
R2 S1
R2 S2
VOICE

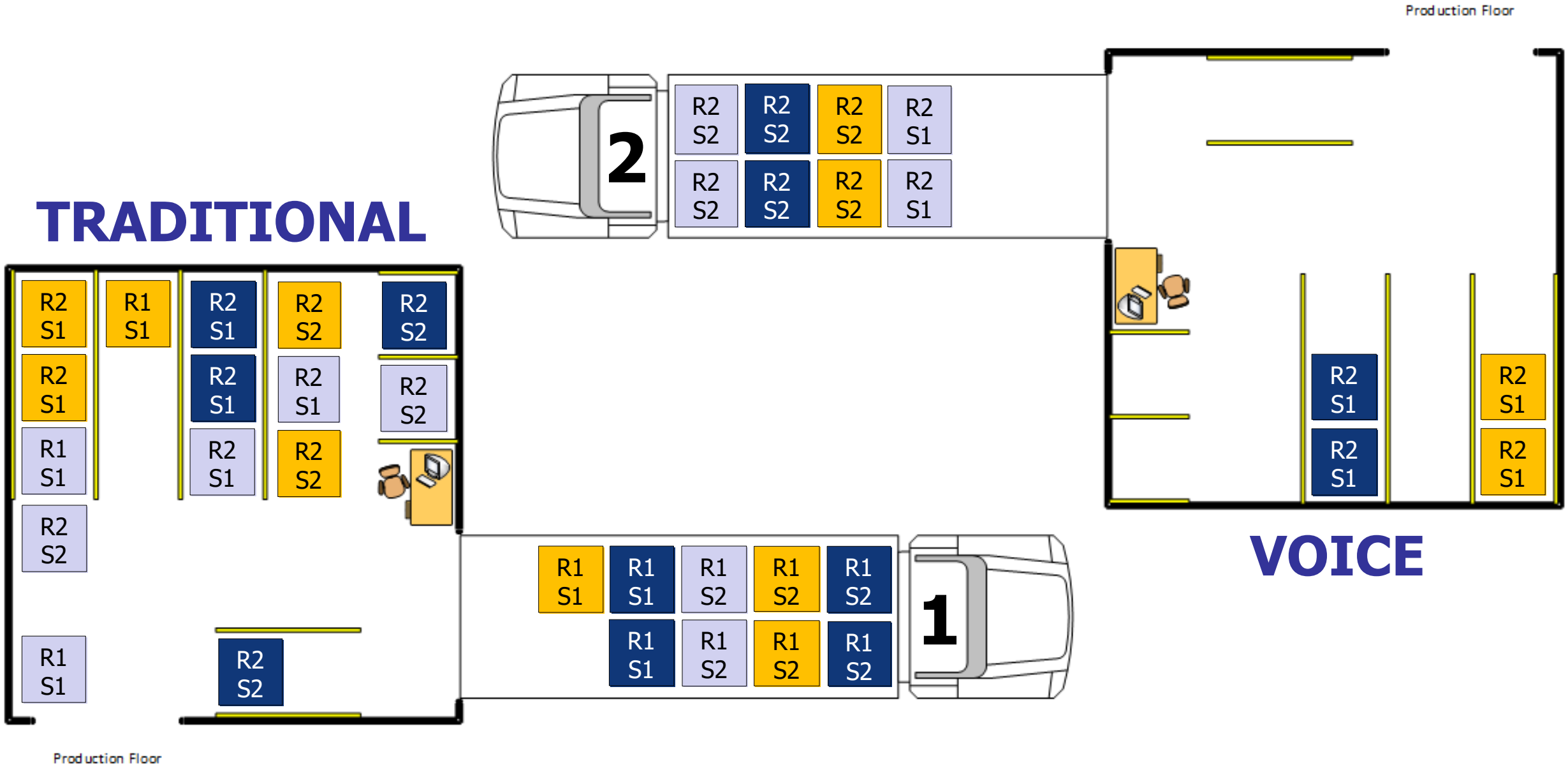

Production Floor
TRADITIONAL
2
R2 S2
R2 S2
R2 S2
R2 S1
R1 S1
R2 S1
R2 S2
R2 S1
R2 S2
R2 S1
R2 S2
R1 S1
R2 S2
R2 S2
R2 S2
R1 S1
R2 S2
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S2
R1 S2
R1 S2
1
R2 S1
R2 S1
R2 S1
R2 S2
R2 S1
R2 S2
R2 S1
R2 S2
R2 S1
R2 S2
VOICE
Production Floor

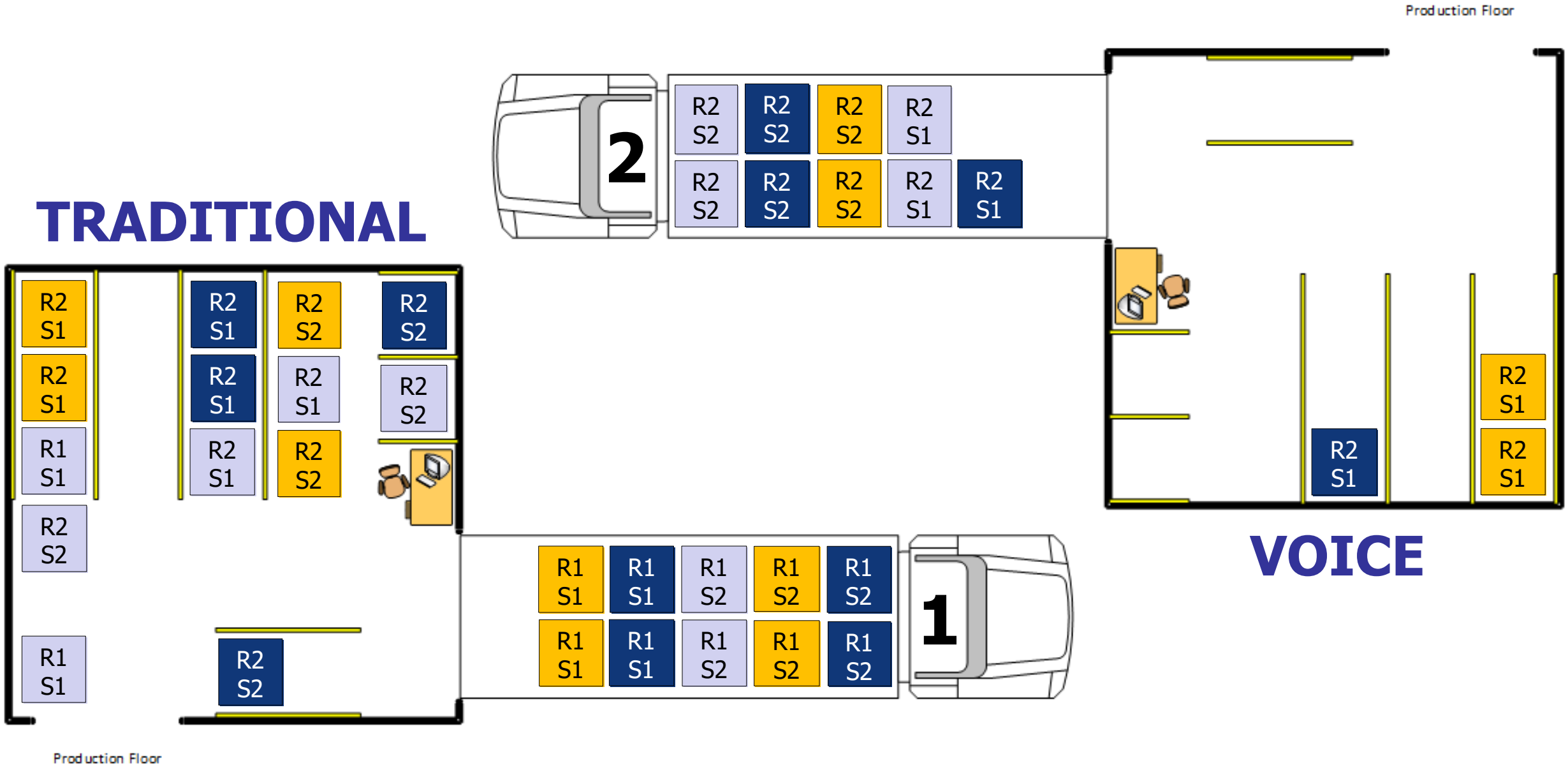

Production Floor
TRADITIONAL
2
R2 S2
R2 S2
R2 S2
R2 S2
R2 S1
R1 S1
R2 S1
R2 S2
R2 S1
R2 S2
R2 S1
R2 S2
R2 S2
R1 S1
R2 S2
R2 S1
R2 S2
R1 S1
R2 S2
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S2
R1 S2
R1 S2
1
R2 S1
R2 S1
R2 S1
R2 S2
R2 S1
R2 S1
R2 S2
R2 S1
VOICE
Production Floor

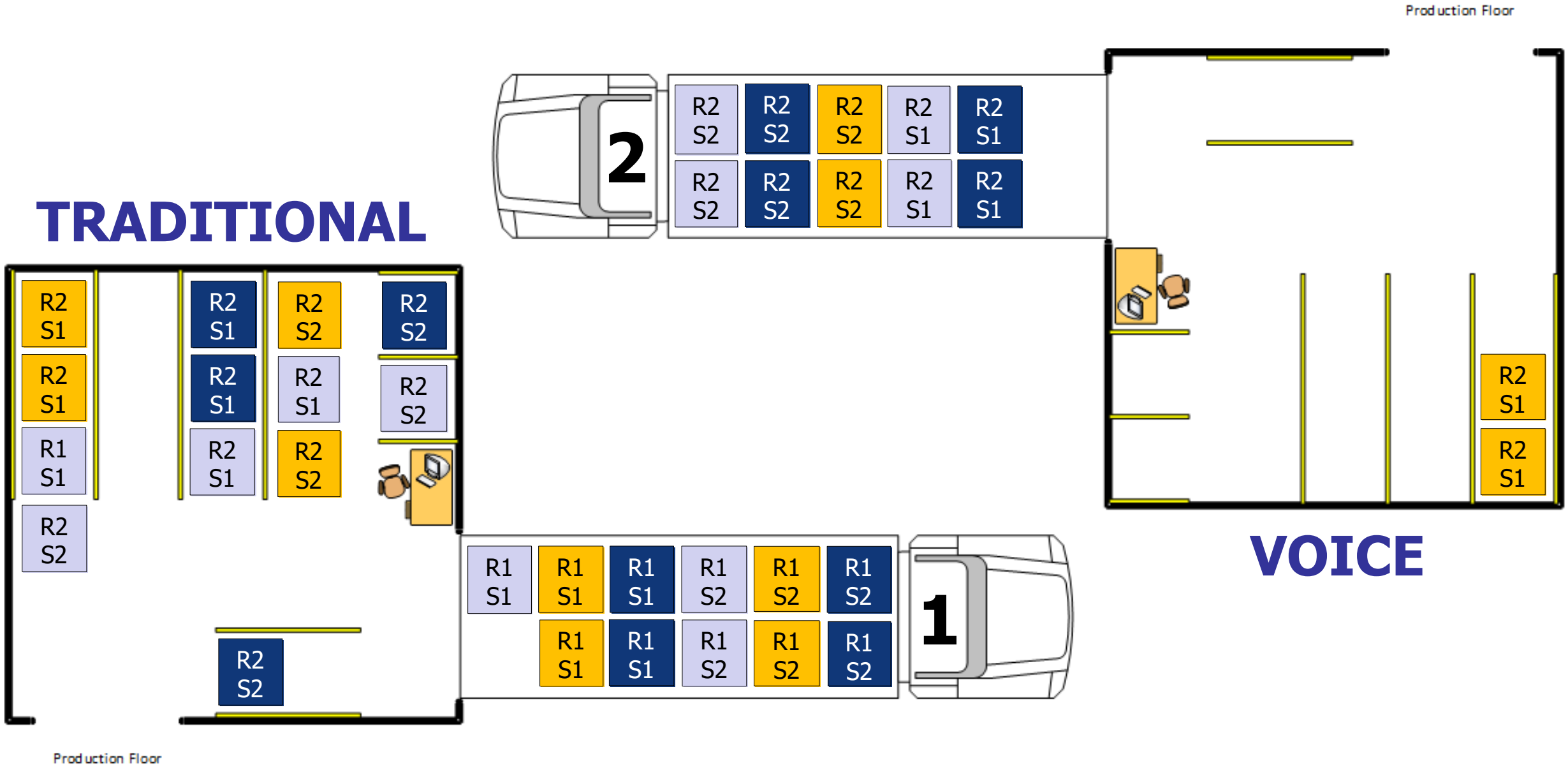

Production Floor
TRADITIONAL
2
R2 S2
R2 S2
R2 S2
R2 S2
R2 S2
R2 S1
R1 S1
R2 S1
R2 S2
R2 S2
R2 S1
R2 S2
R2 S1
R2 S2
R1 S1
R2 S1
R2 S2
R1 S1
R2 S2
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S2
R1 S2
R1 S2
1
R2 S1
R2 S1
R2 S1
R2 S1
R2 S1
R2 S2
R2 S1
VOICE
Production Floor

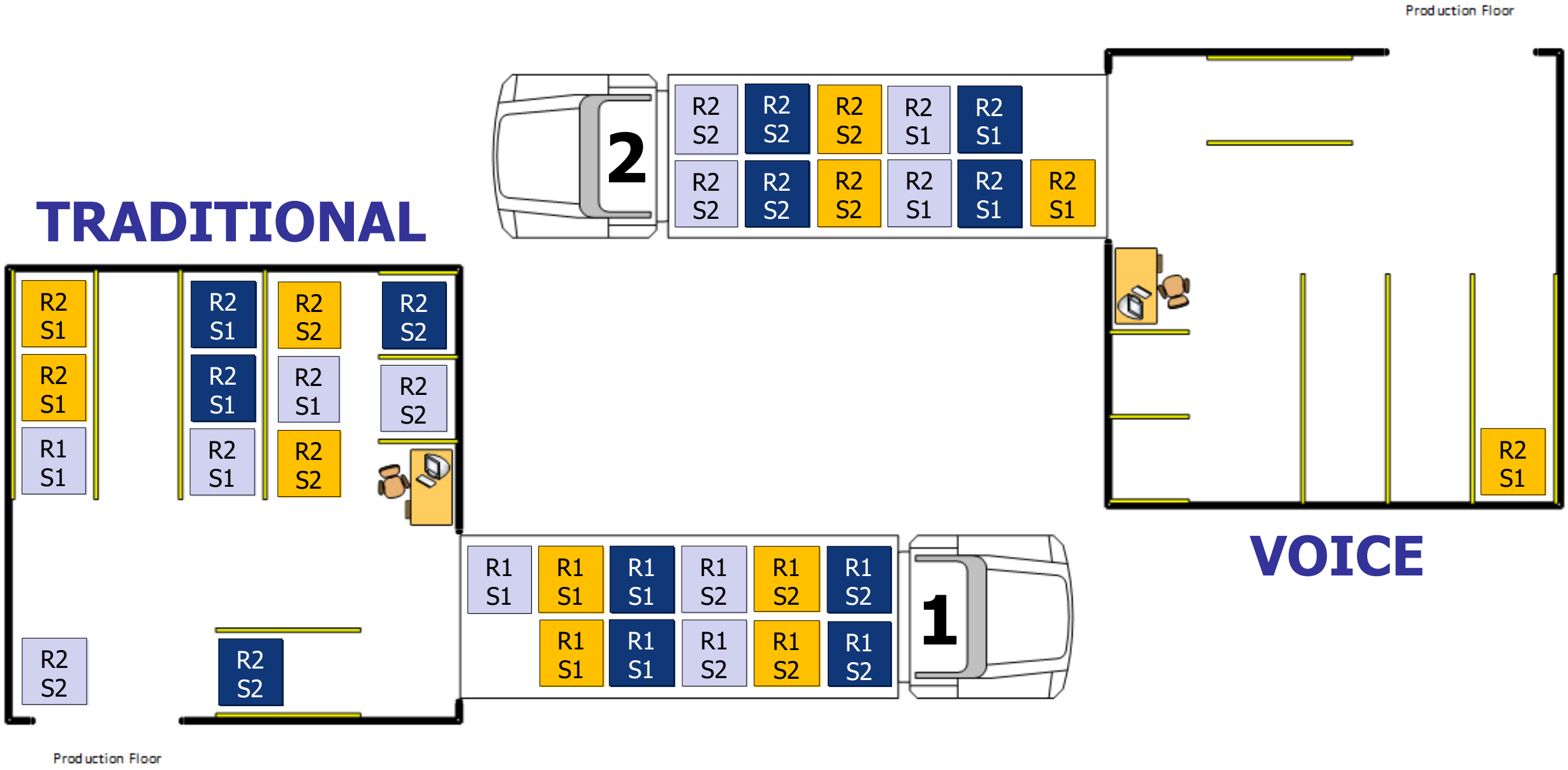

TRADITIONAL
VOICE
Production Floor
Production Floor
2
1
R2 S2
R1 S1
R1 S2
R2 S1

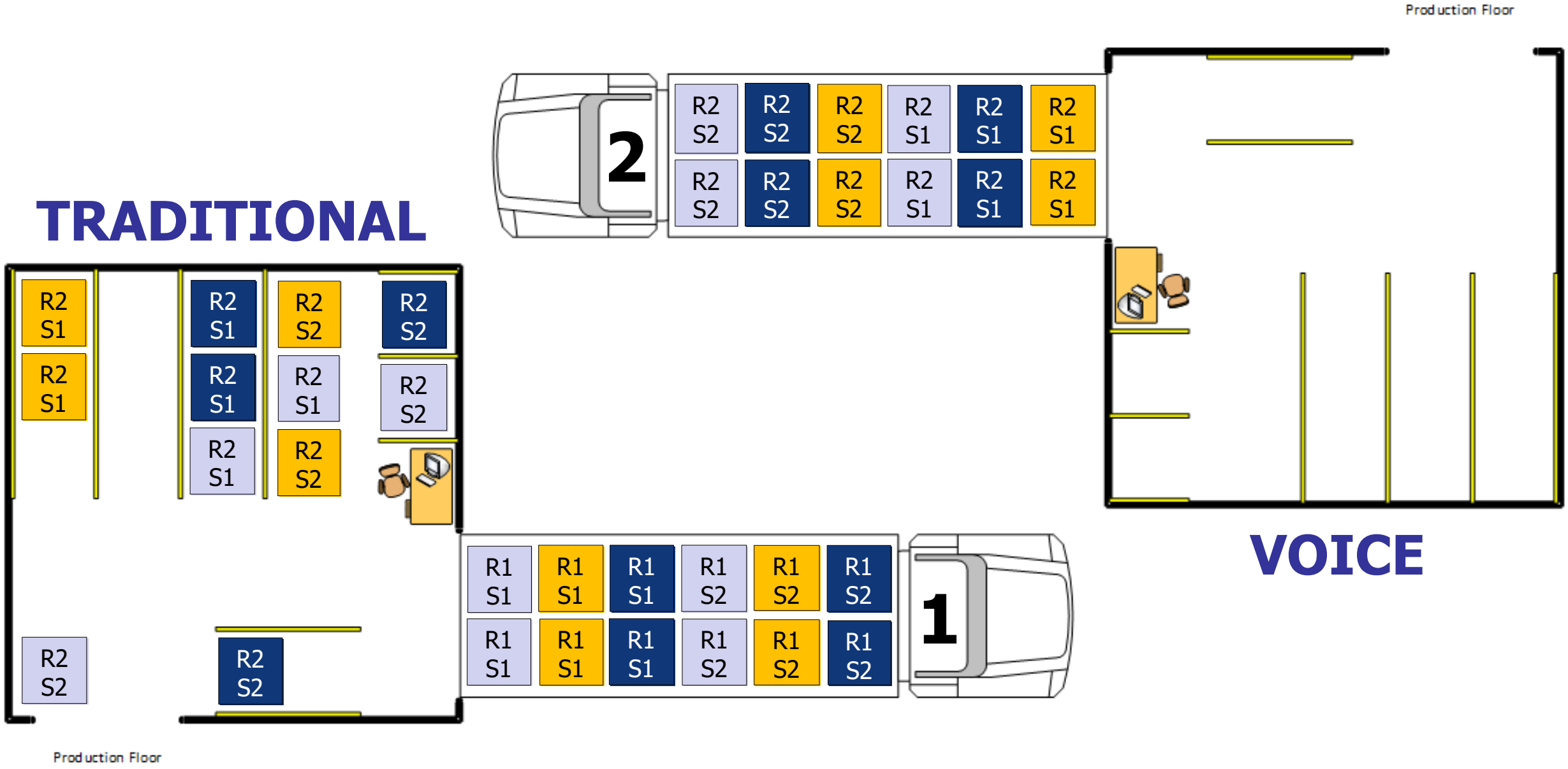

Production Floor
TRADITIONAL
2
R2 S2
R2 S2
R2 S2
R2 S2
R2 S2
R2 S2
R2 S1
R2 S1
R1 S1
R2 S1
R2 S2
R2 S2
R2 S1
R2 S2
R1 S1
R2 S1
R2 S2
R1 S1
R2 S2
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S2
R1 S2
R1 S2
1
R2 S1
R2 S1
R2 S1
R2 S1
R2 S1
VOICE
Production Floor


TRADITIONAL
R2 S1
R1 S1
R2 S1
R2 S2
R2 S2
R2 S1
R2 S1
R2 S2
R1 S1
R2 S1
R2 S2
R2 S2
R1 S1
R2 S2
2
R2 S2
R2 S2
R2 S2
R2 S1
R2 S2
R2 S2
R2 S2
R2 S1
1
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S2
R1 S2
R1 S2
Production Floor
Production Floor
R2 S1
R2 S1
R2 S1
R2 S1
VOICE

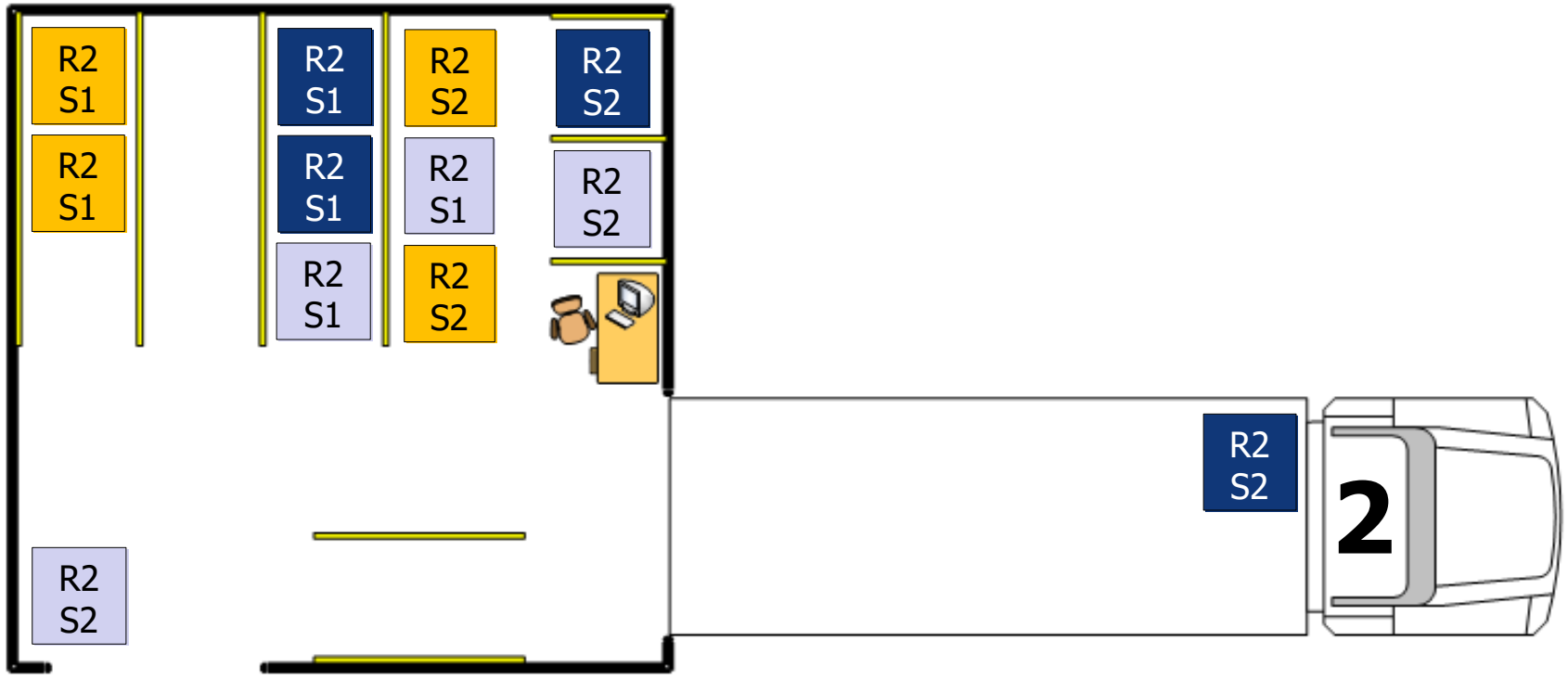

TRADITIONAL
R2 S1
R2 S1
R1 S1
R2 S2
R1 S1
R2 S1
R2 S1
R2 S1
R2 S2
R2 S2
R2 S2
R2 S2
R2 S2
2
R2 S2
R2 S2
R2 S2
R2 S1
R2 S2
R2 S2
R2 S2
R2 S1
R2 S1
1
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
Production Floor
Production Floor
R2 S1
R2 S1
R2 S1
VOICE

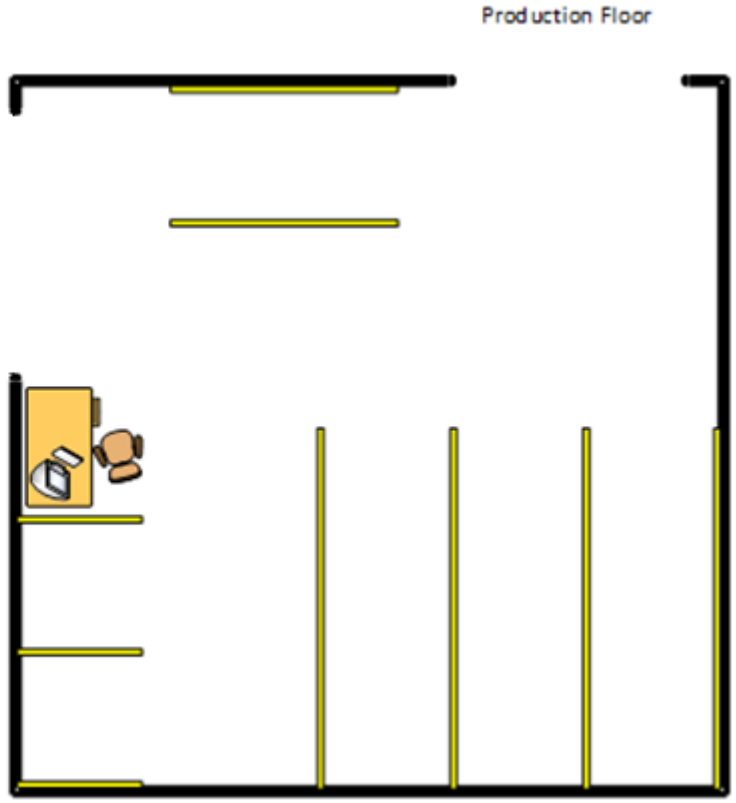

TRADITIONAL
VOICE
Production Floor
Production Floor
2
1
R2 S2
R2 S1
R1 S1
R1 S2


TRADITIONAL
R2 S1
R2 S1
R1 S1
R2 S1
R2 S1
R2 S2
R2 S2
R2 S1
R2 S2
R2 S2
R2 S2
R2 S2
R1 S1
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
1
2
R2 S2
R2 S2
R2 S2
R2 S1
R2 S1
R2 S2
R2 S2
R2 S2
R2 S2
R2 S1
R2 S1
R2 S1
R2 S1
VOICE
Production Floor
Production Floor


TRADITIONAL
R2 S1
R2 S1
R2 S1
R2 S1
R2 S2
R2 S1
R2 S2
R2 S2
R2 S2
R2 S2
R2 S2
R2 S2
R1 S1
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
R1 S1
R1 S1
R1 S1
R1 S2
R1 S2
R1 S2
1
2
Production Floor
Production Floor
VOICE

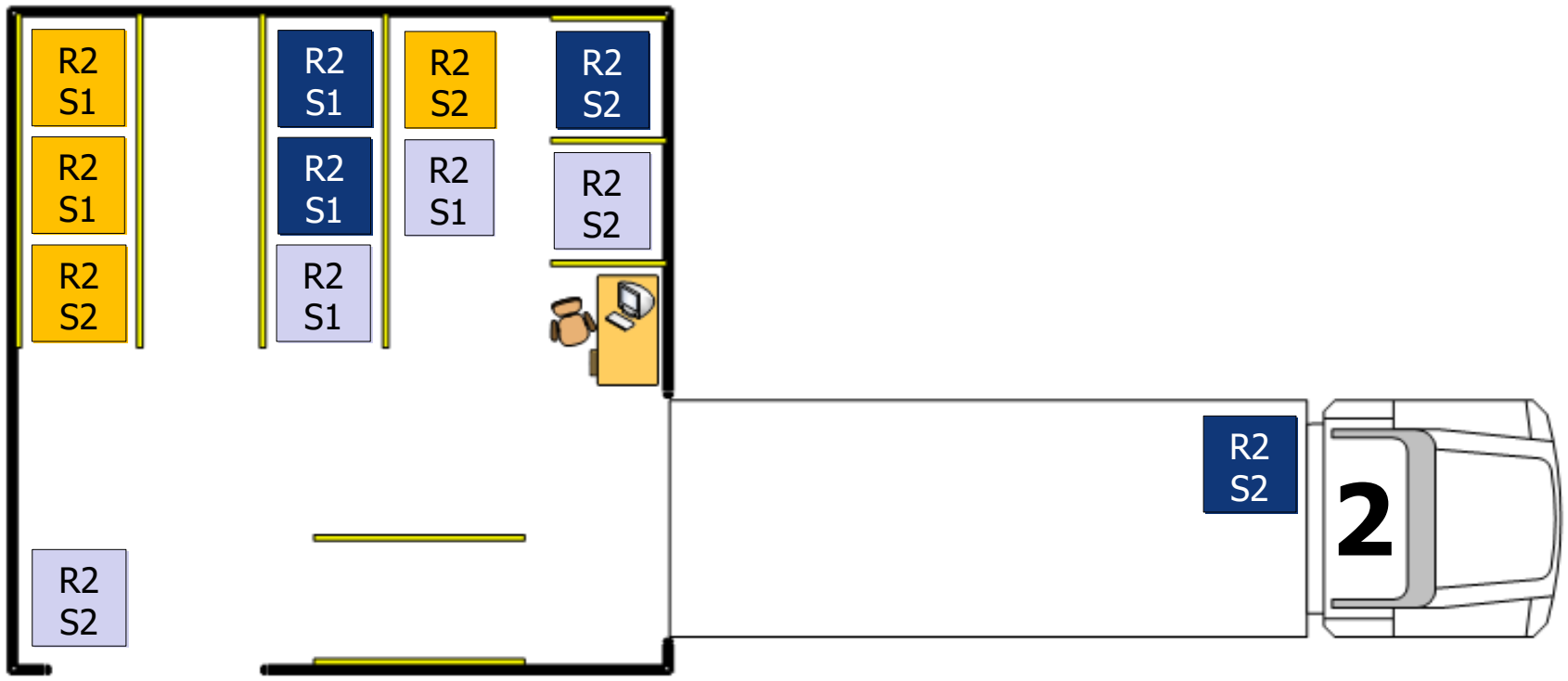
TRADITIONAL



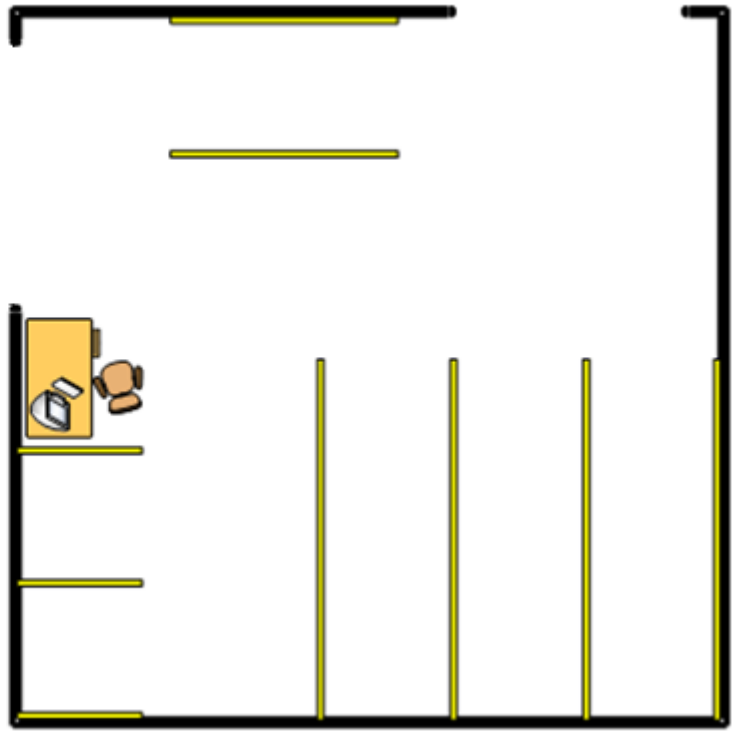


VOICE

TRADITIONAL



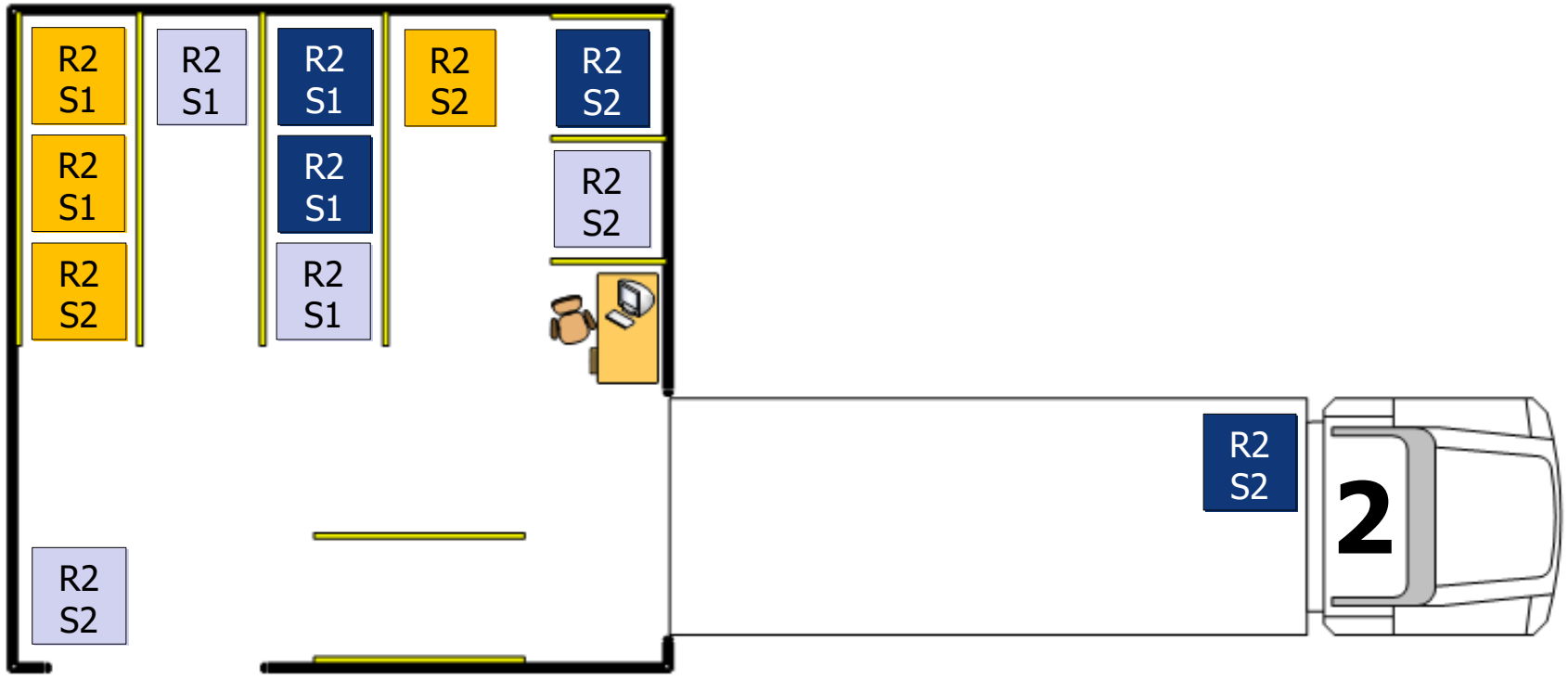
Production Floor



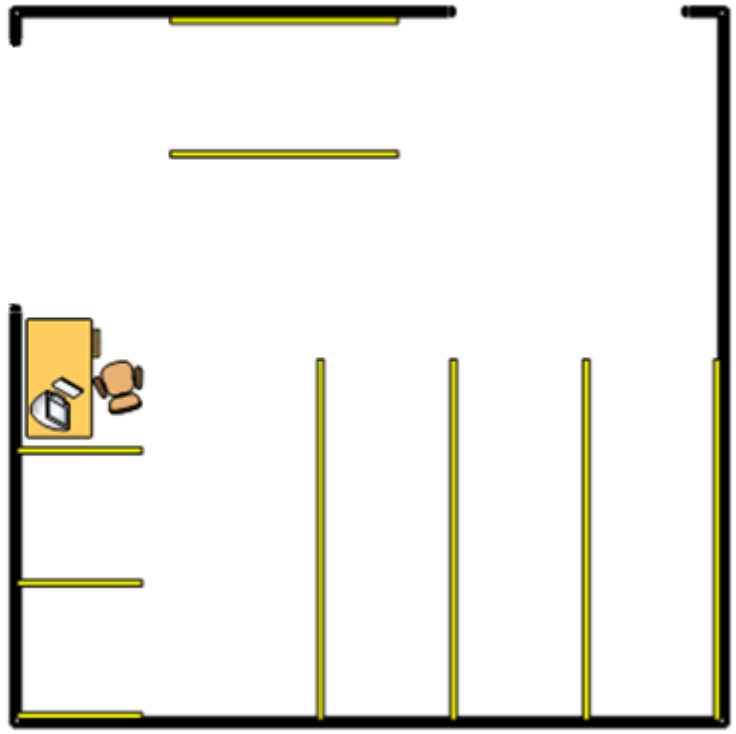
Production Floor

VOICE

TRADITIONAL



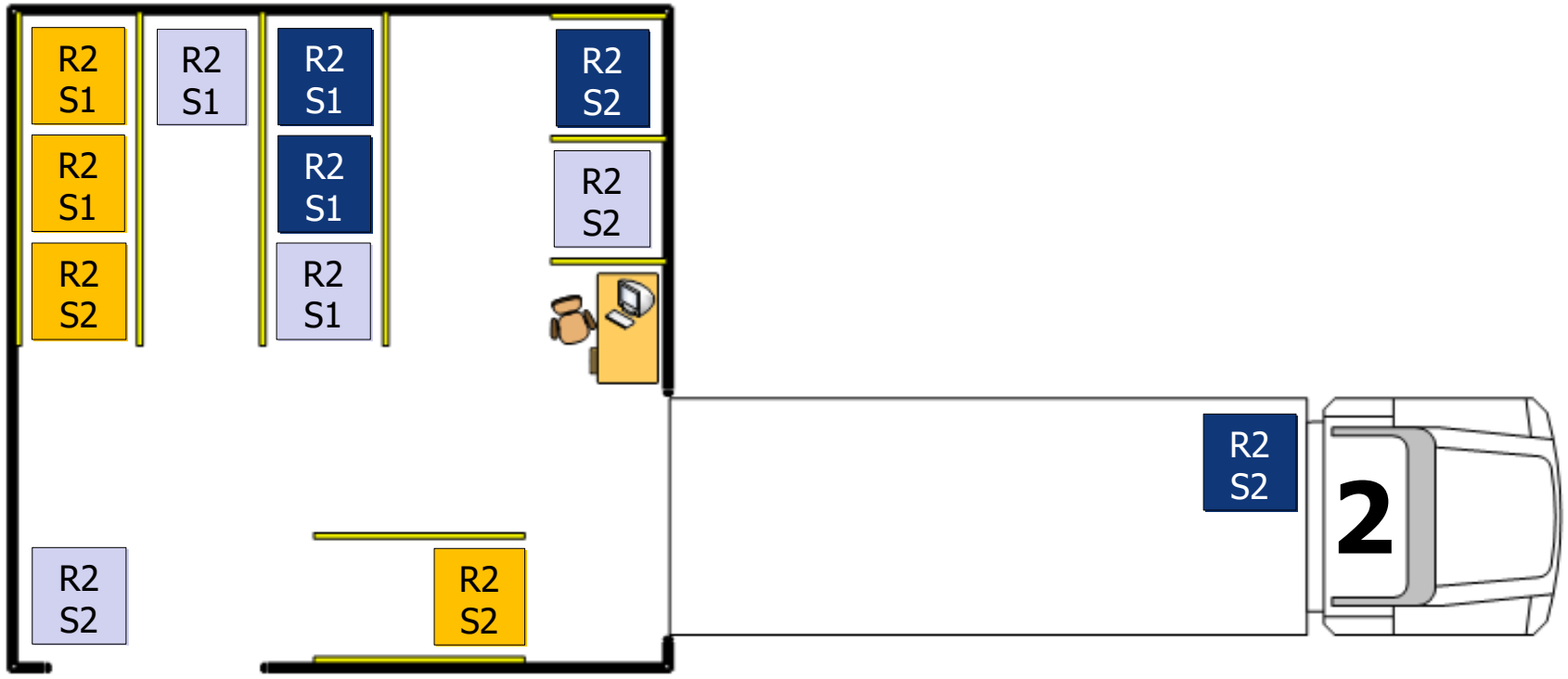
Production Floor



Production Floor

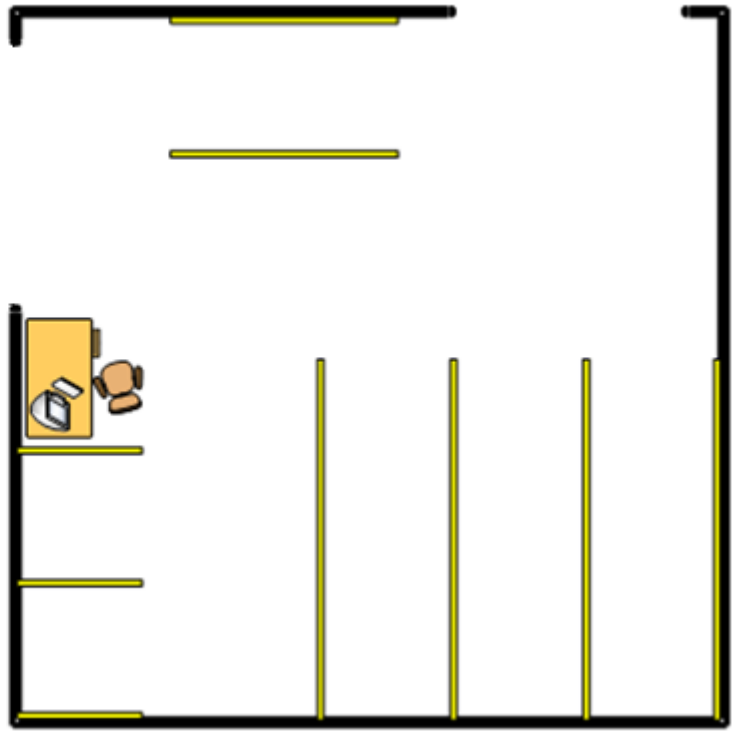
VOICE

TRADITIONAL



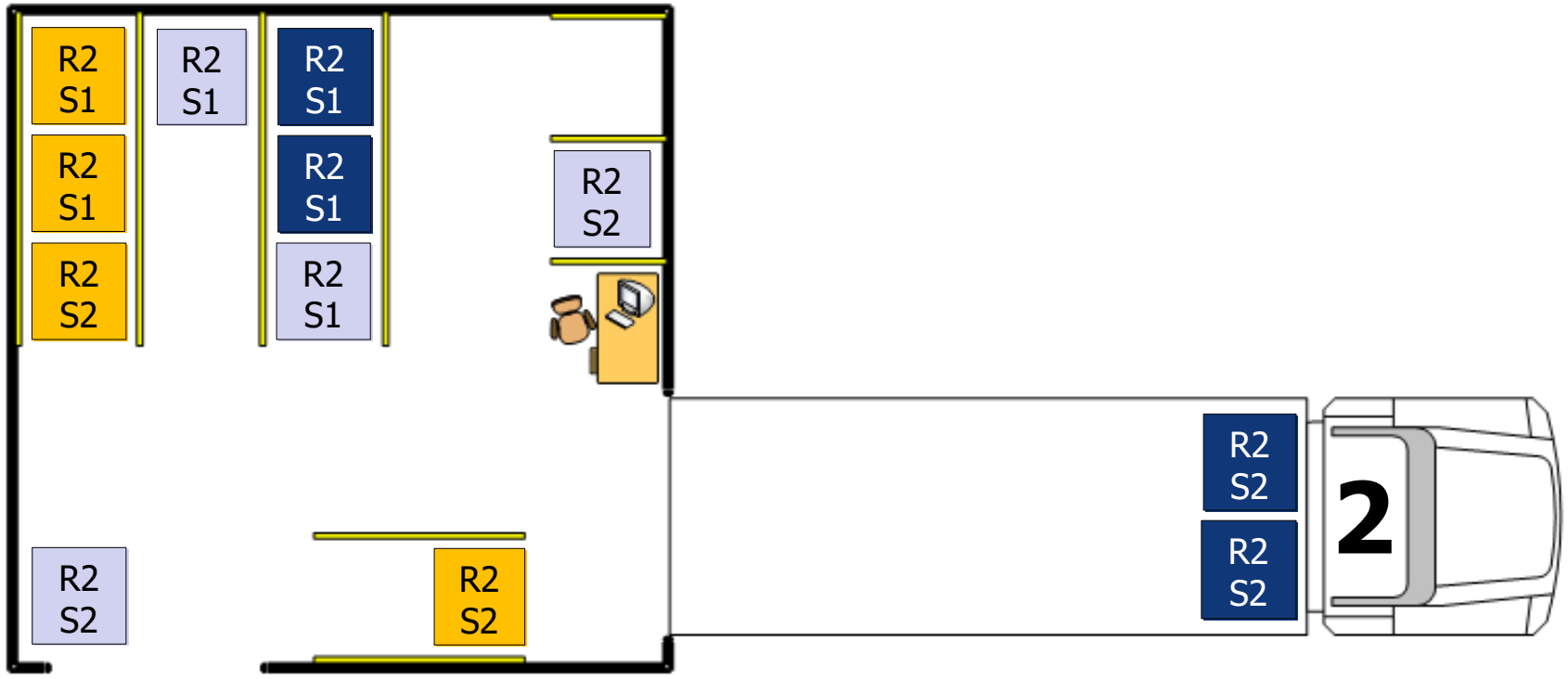
Production Floor

Production Floor



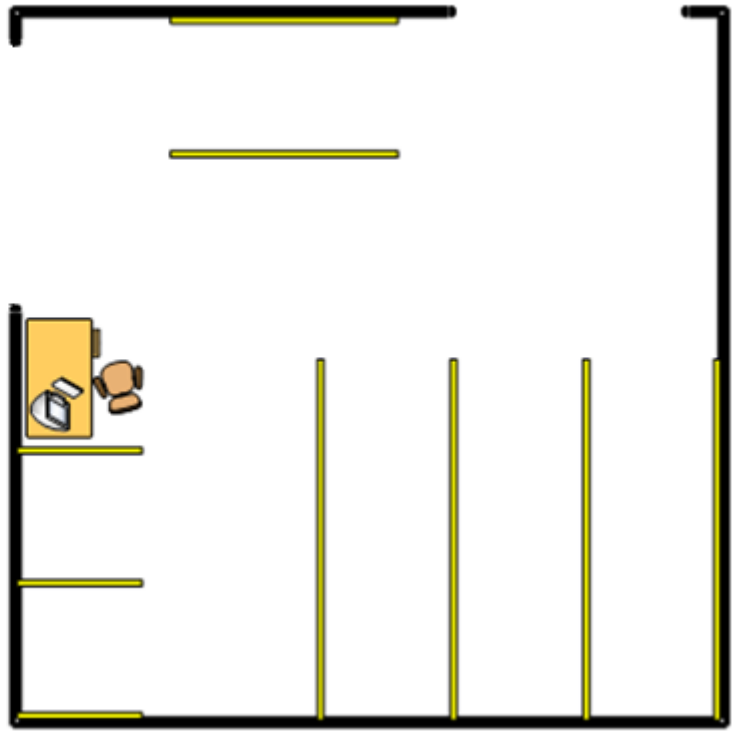
VOICE

TRADITIONAL



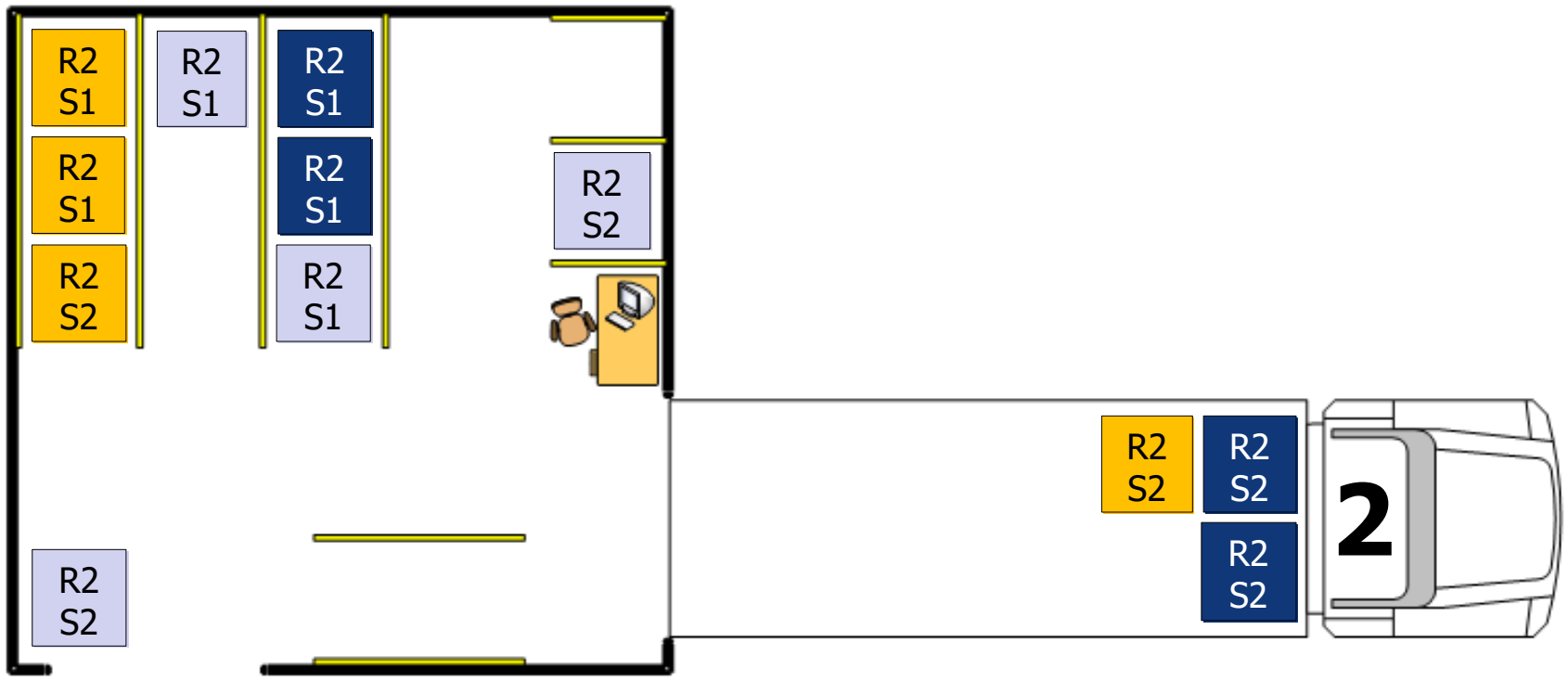
Production Floor

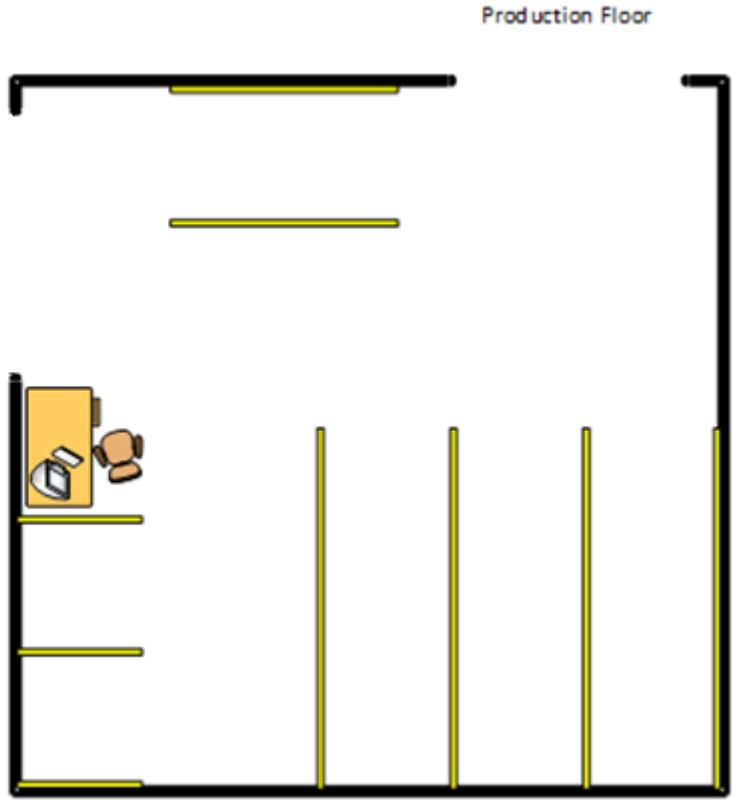
Production Floor



VOICE

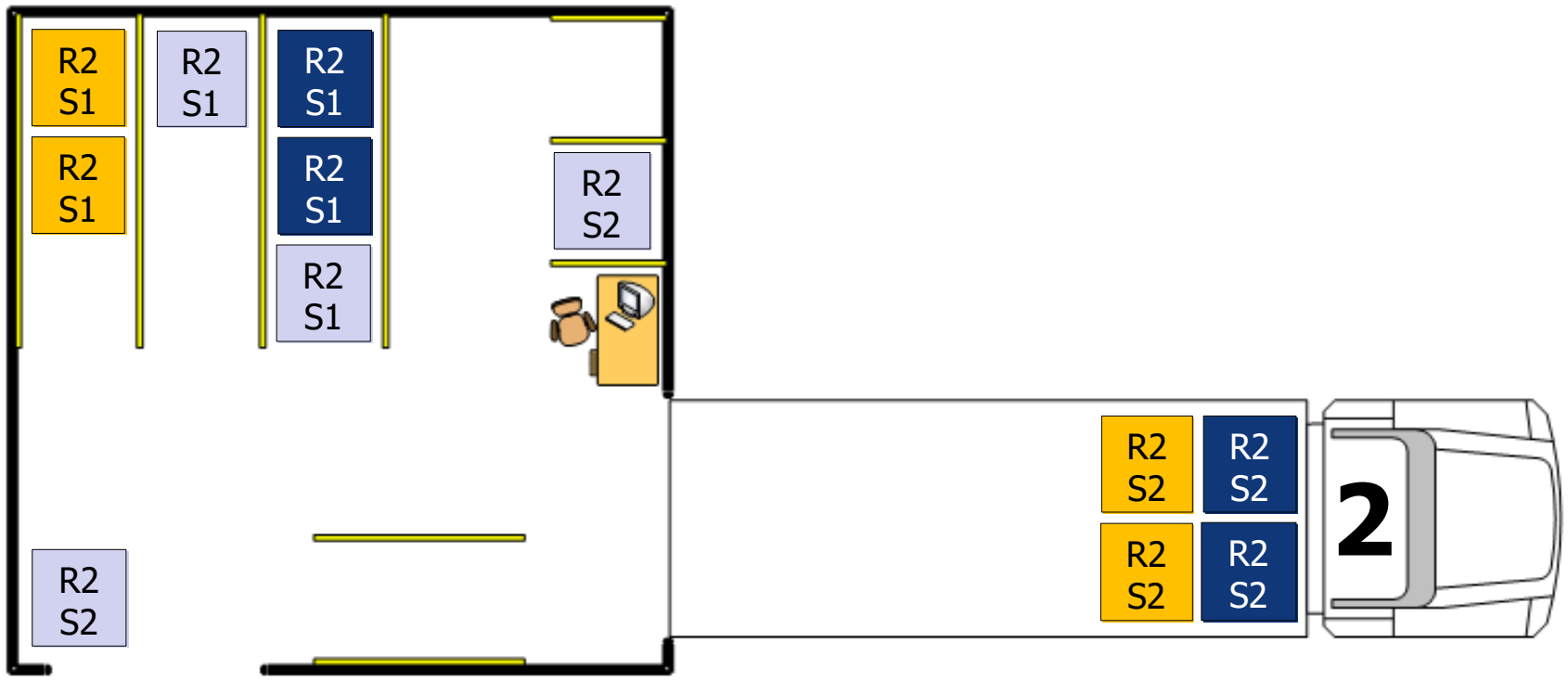
TRADITIONAL

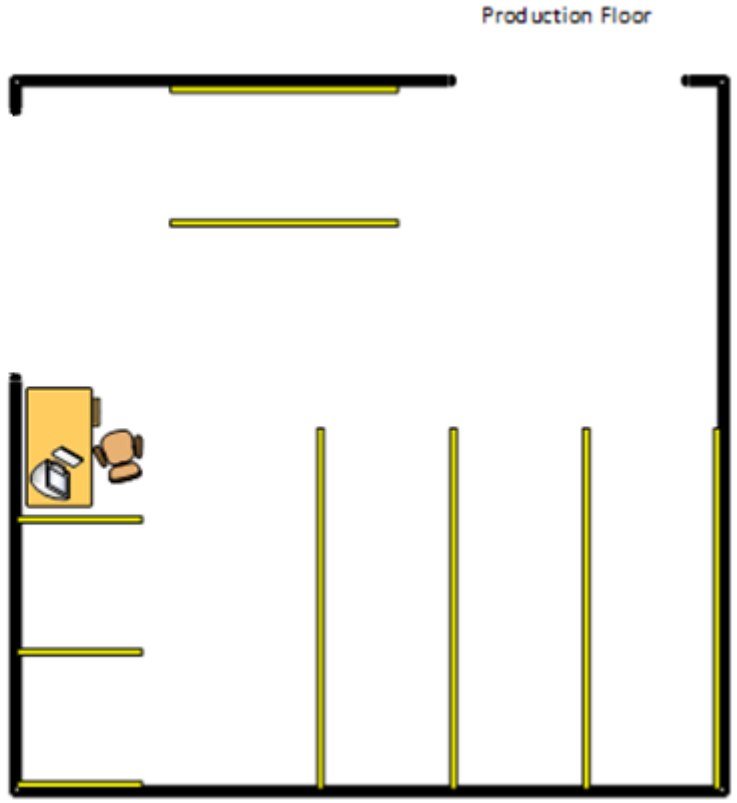




VOICE

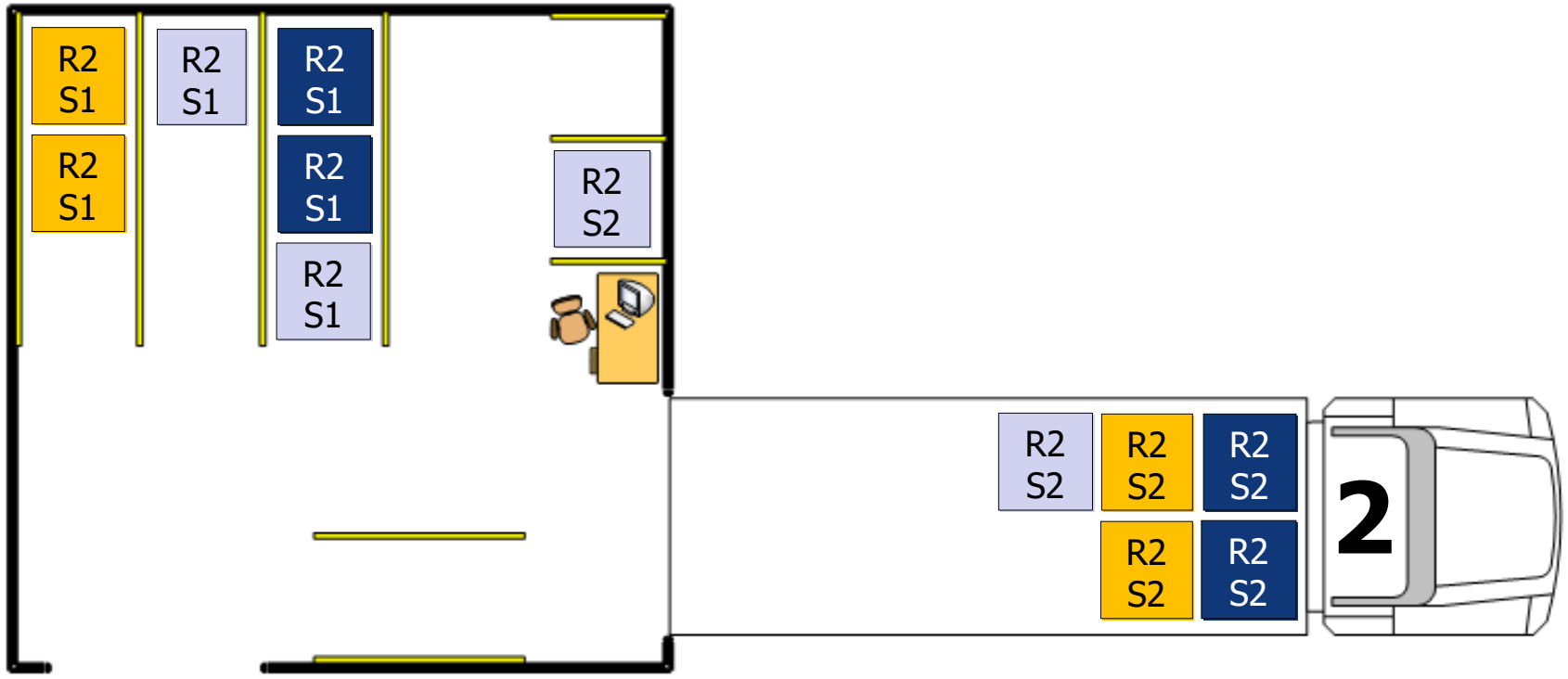
TRADITIONAL

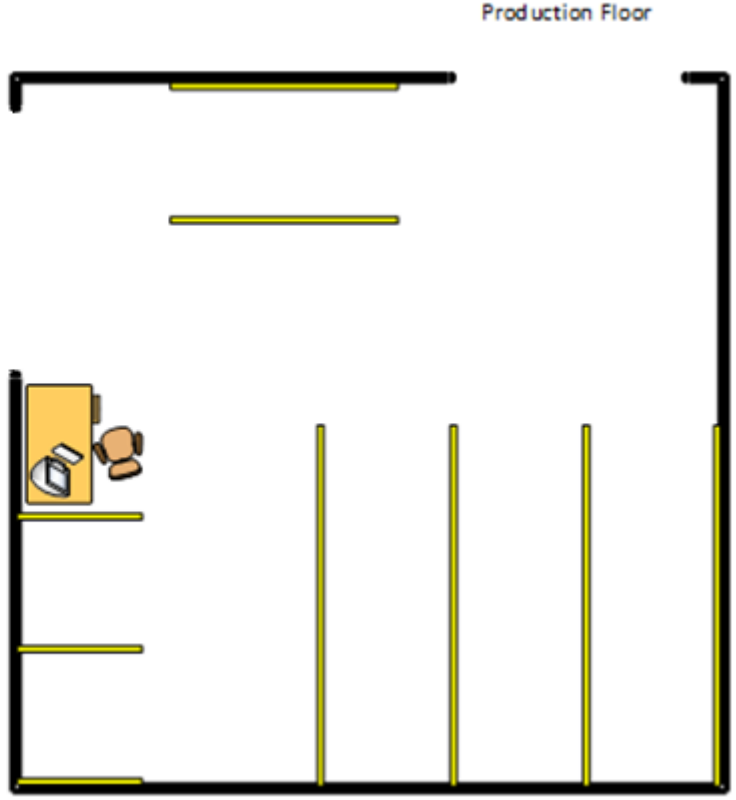




VOICE

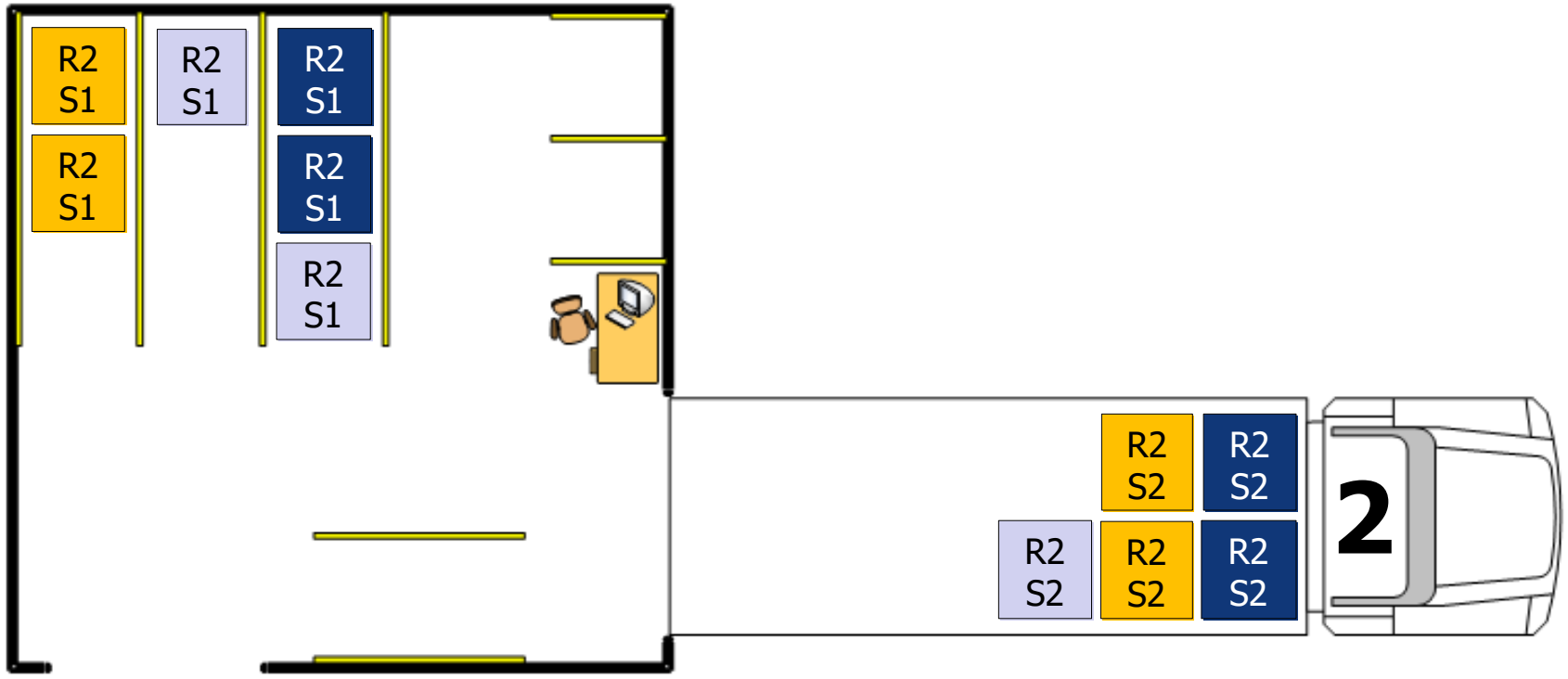
TRADITIONAL

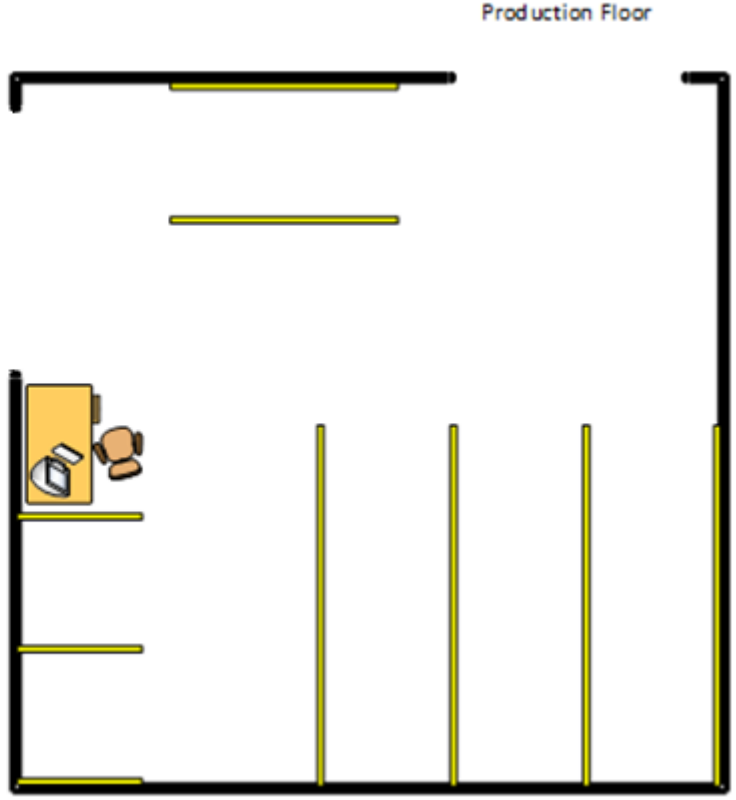




VOICE

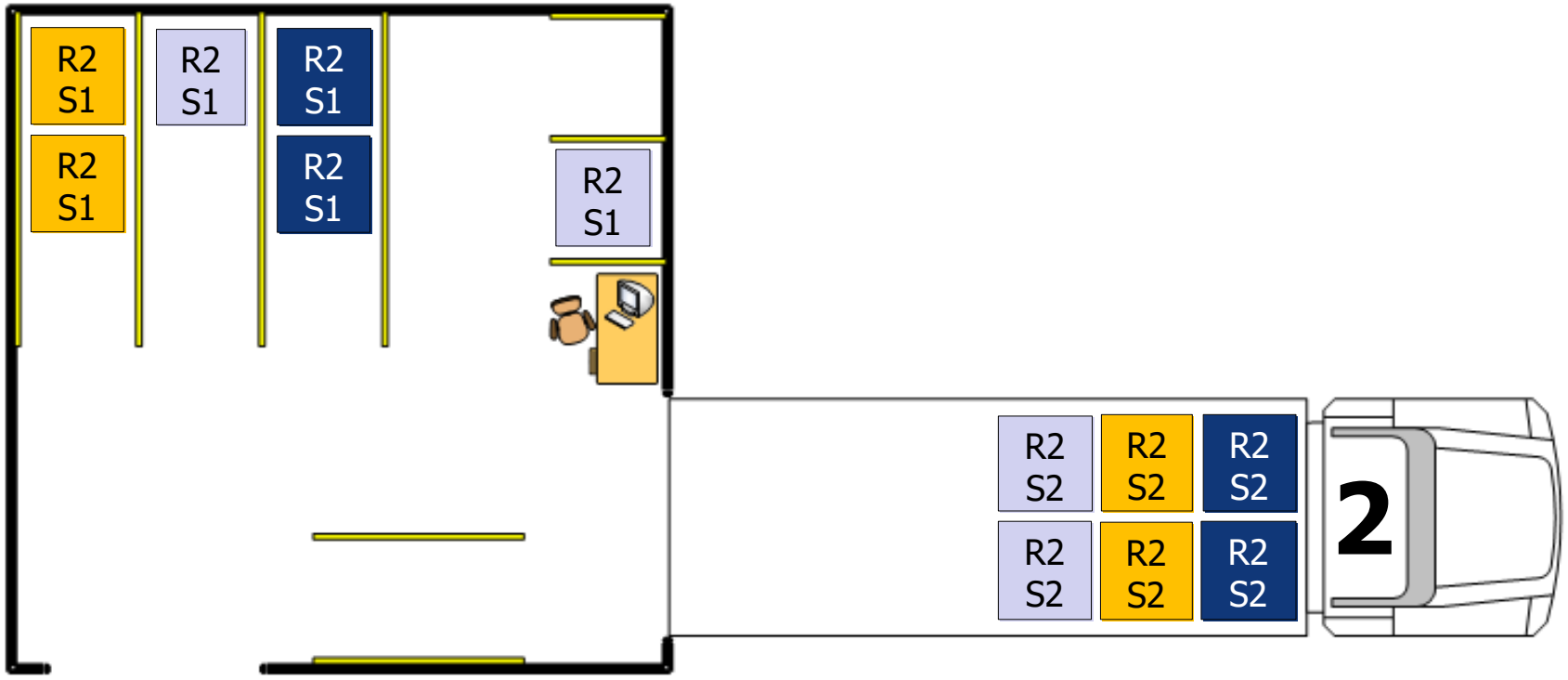
TRADITIONAL

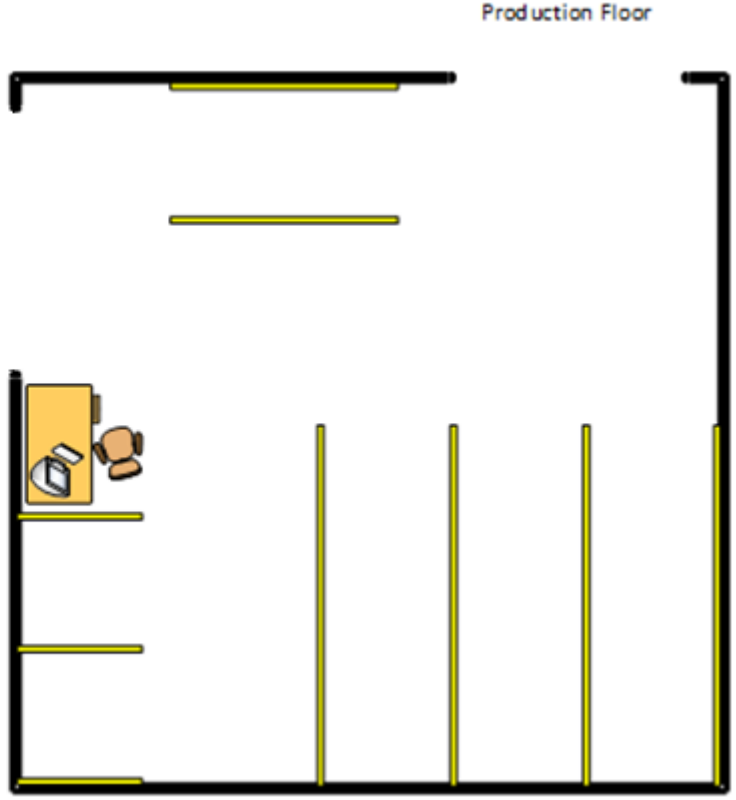




VOICE

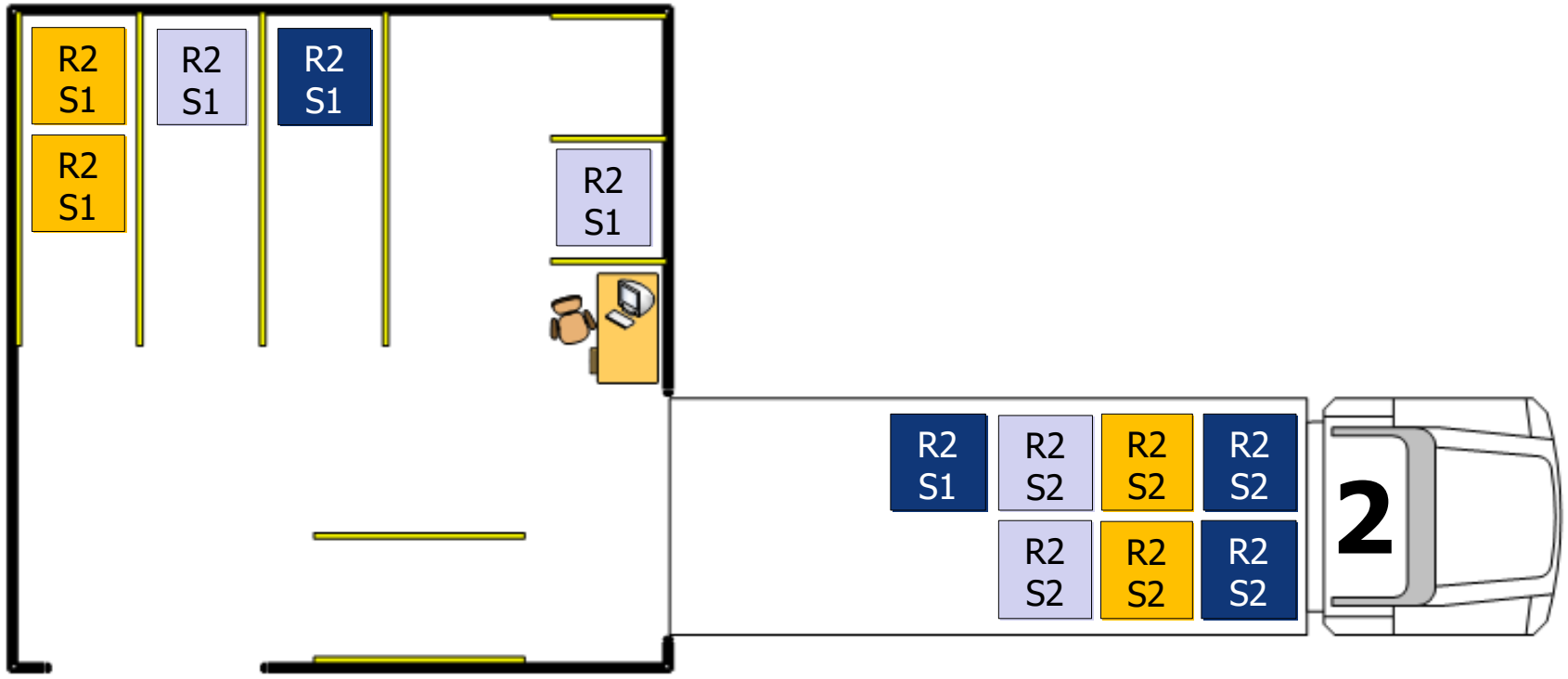
TRADITIONAL

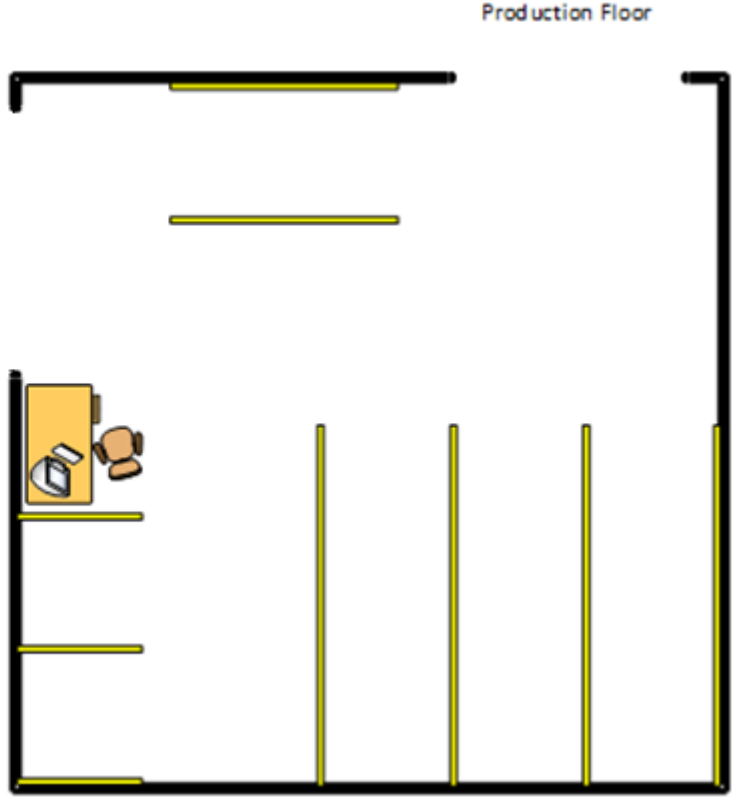




VOICE

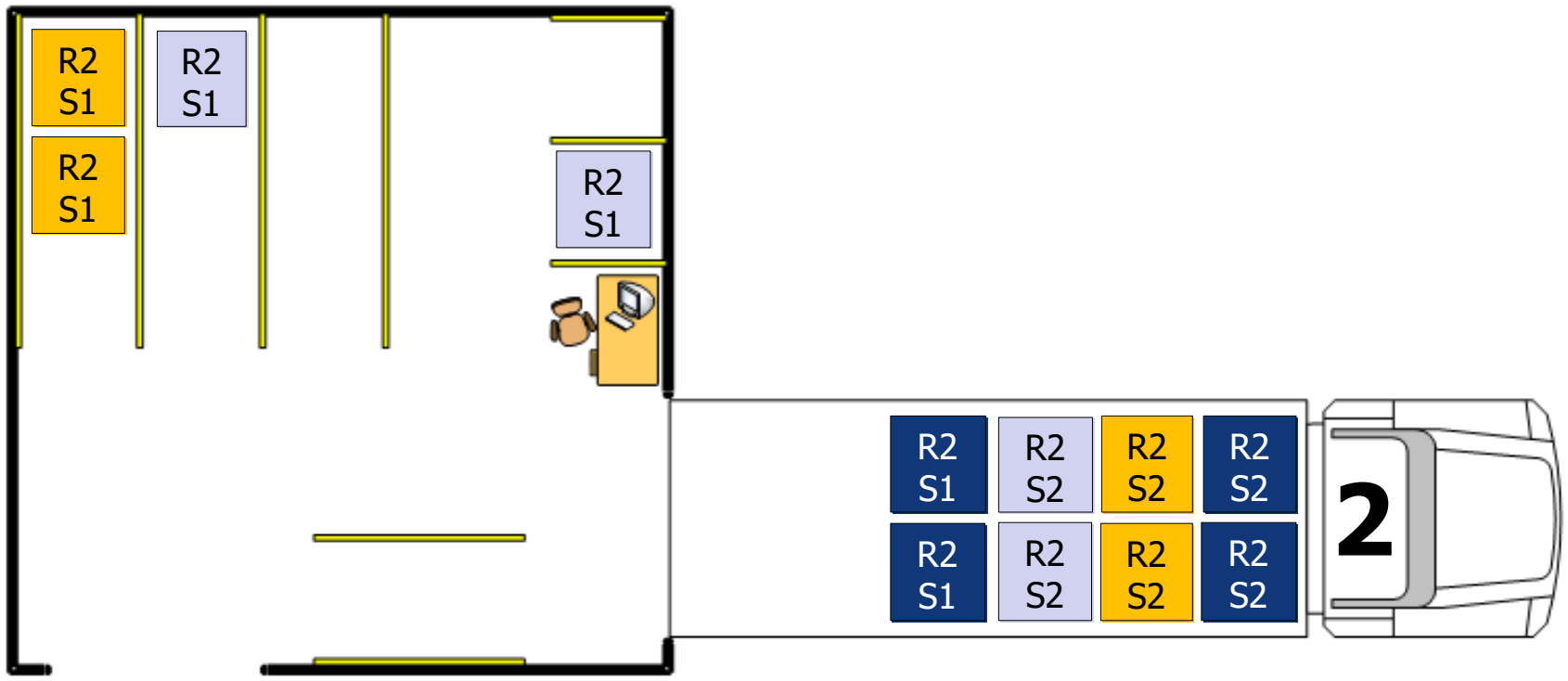
TRADITIONAL

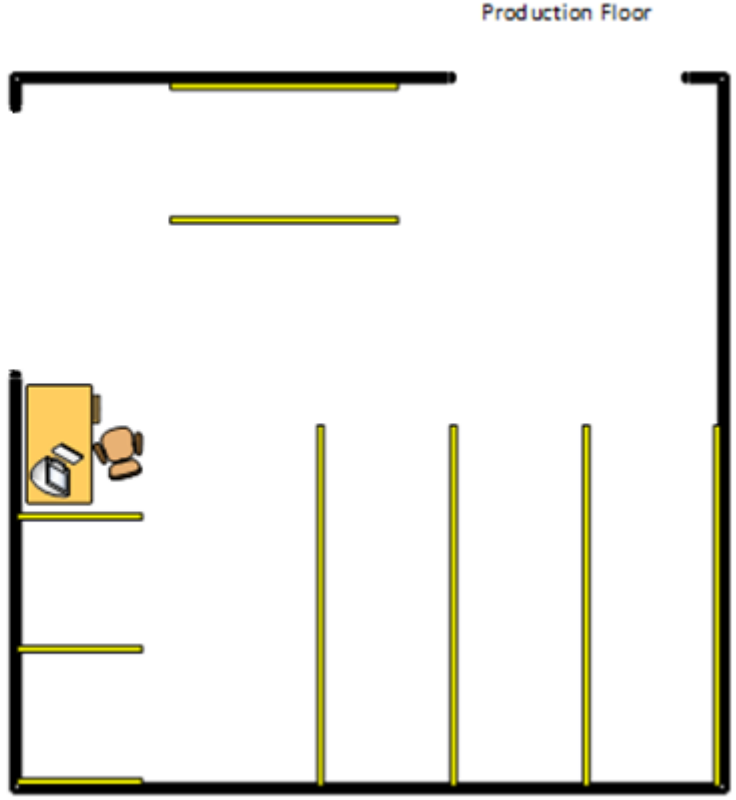




VOICE

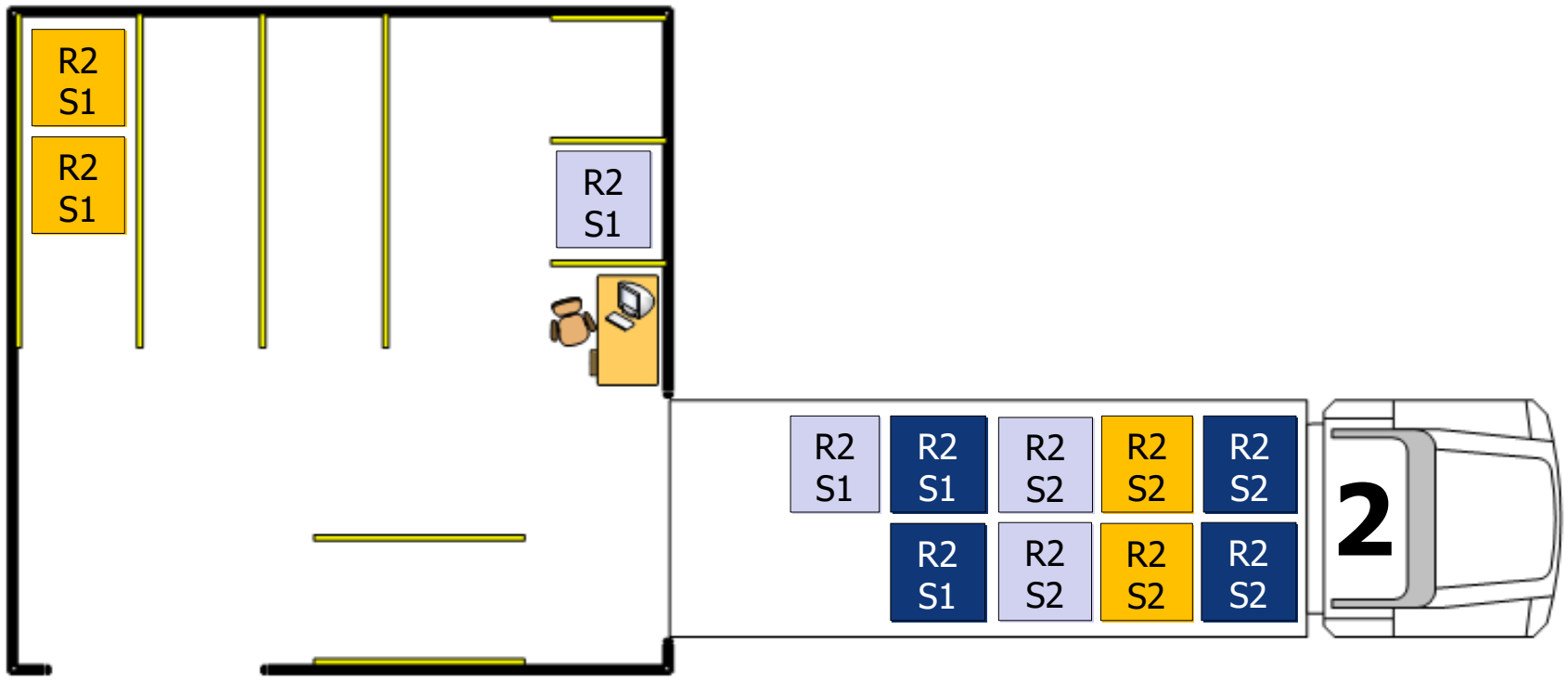
TRADITIONAL

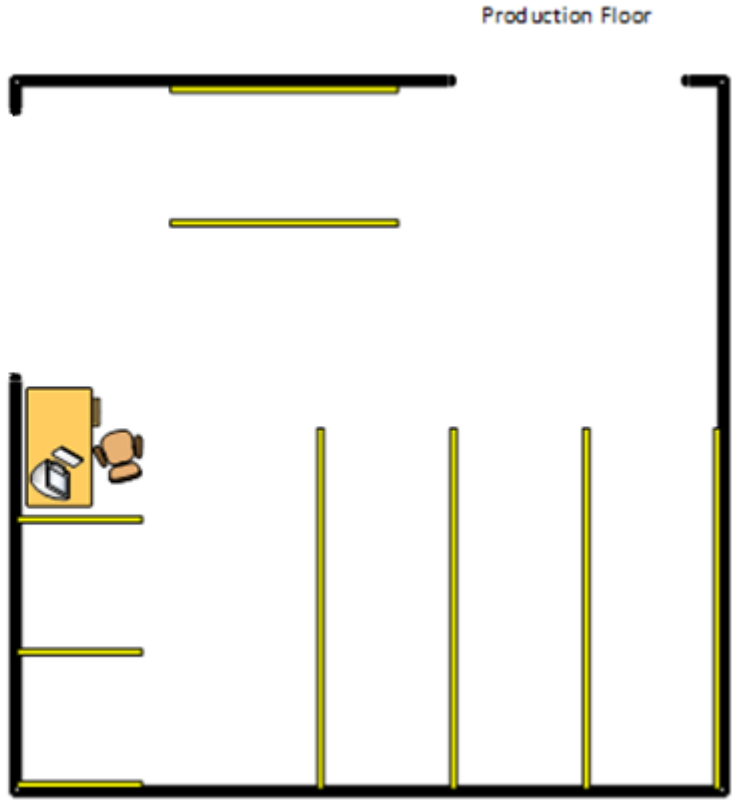




VOICE

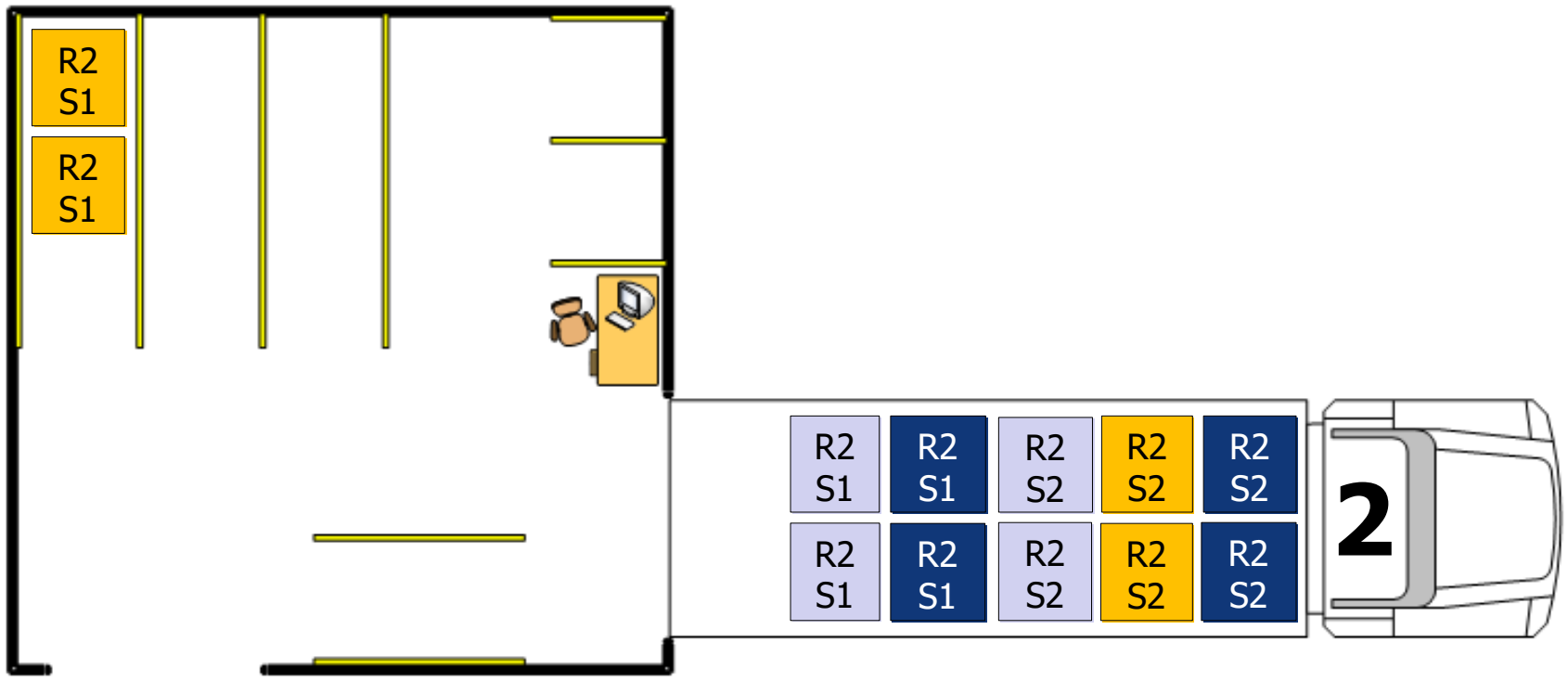
TRADITIONAL

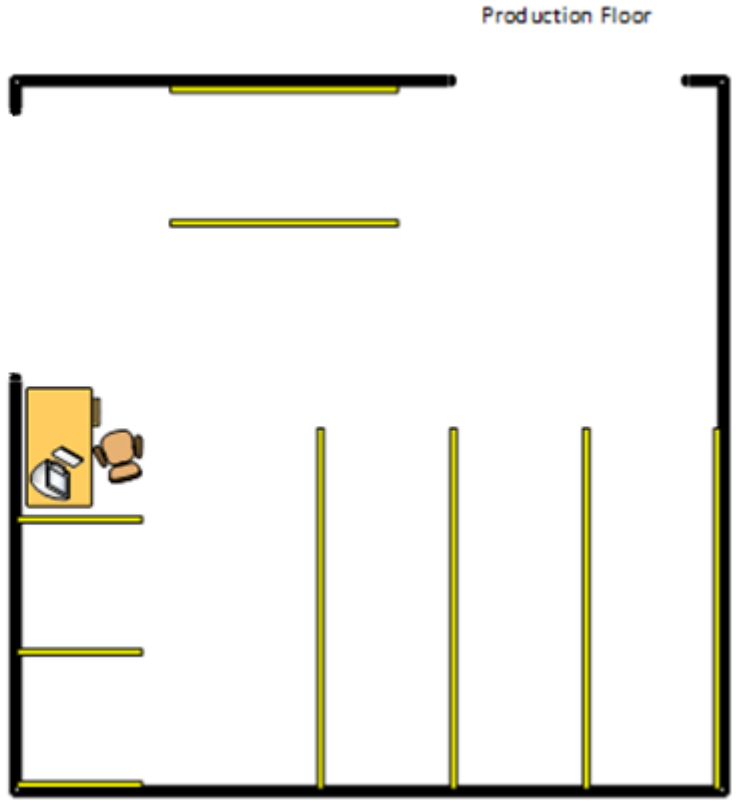




VOICE

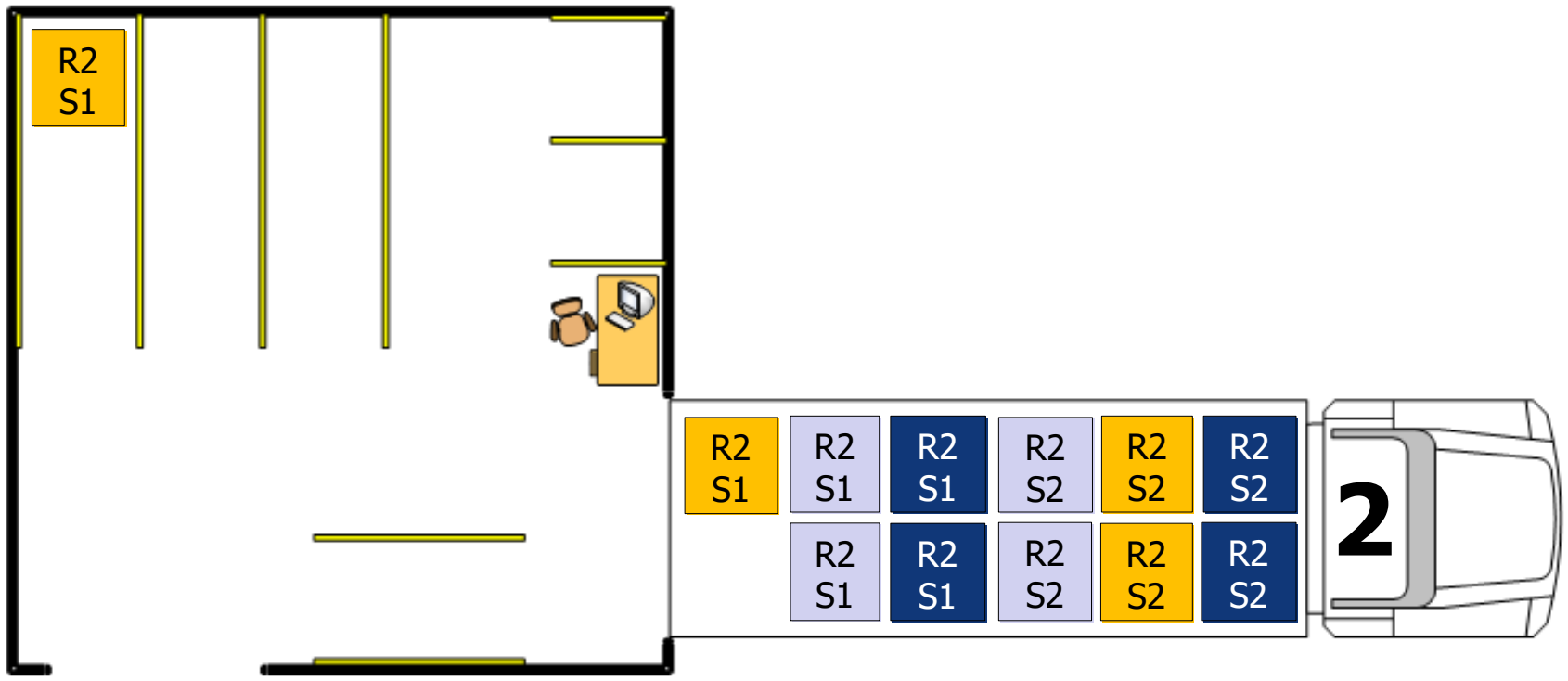
TRADITIONAL

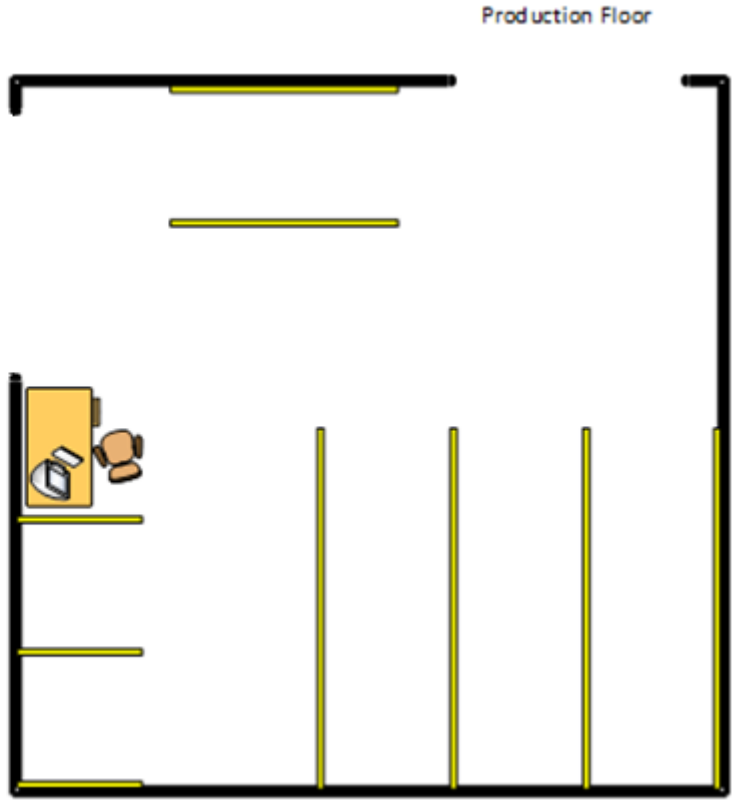




VOICE

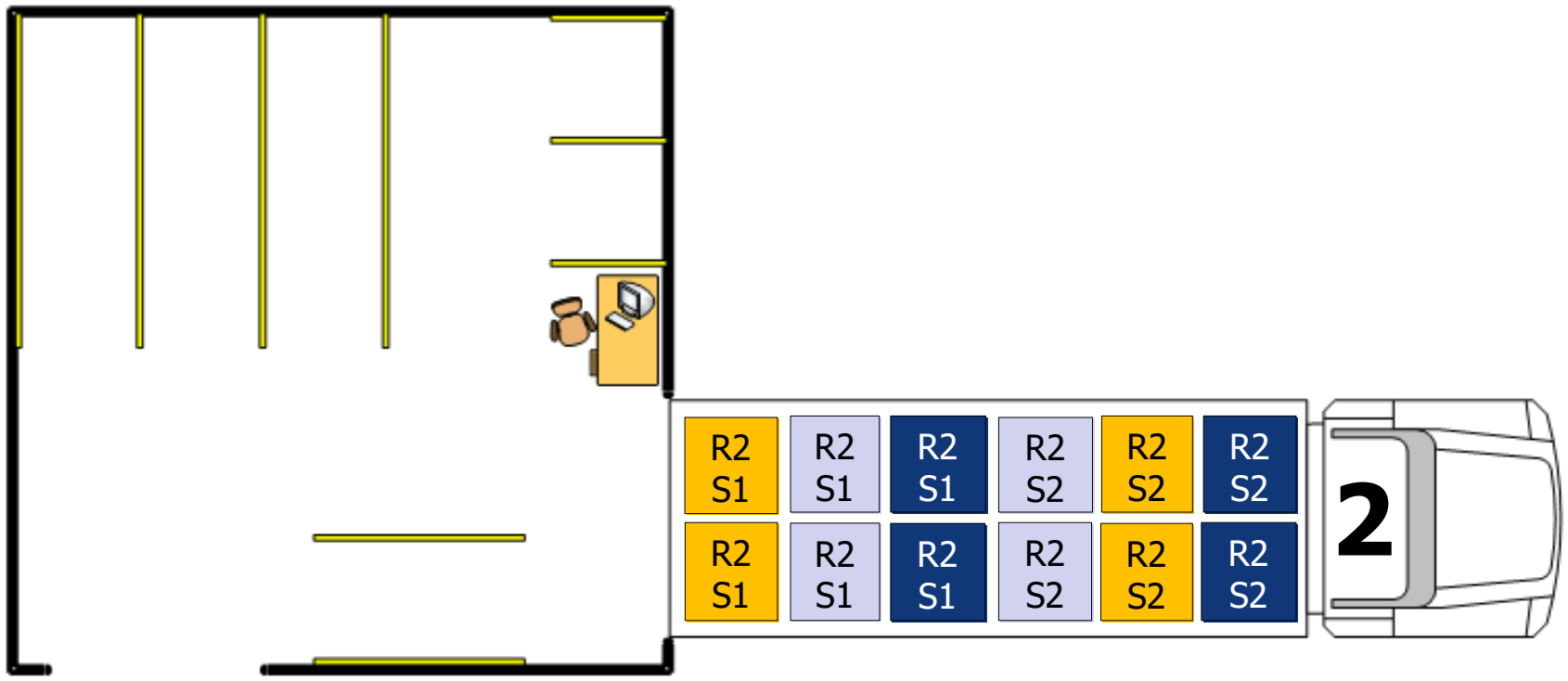
TRADITIONAL

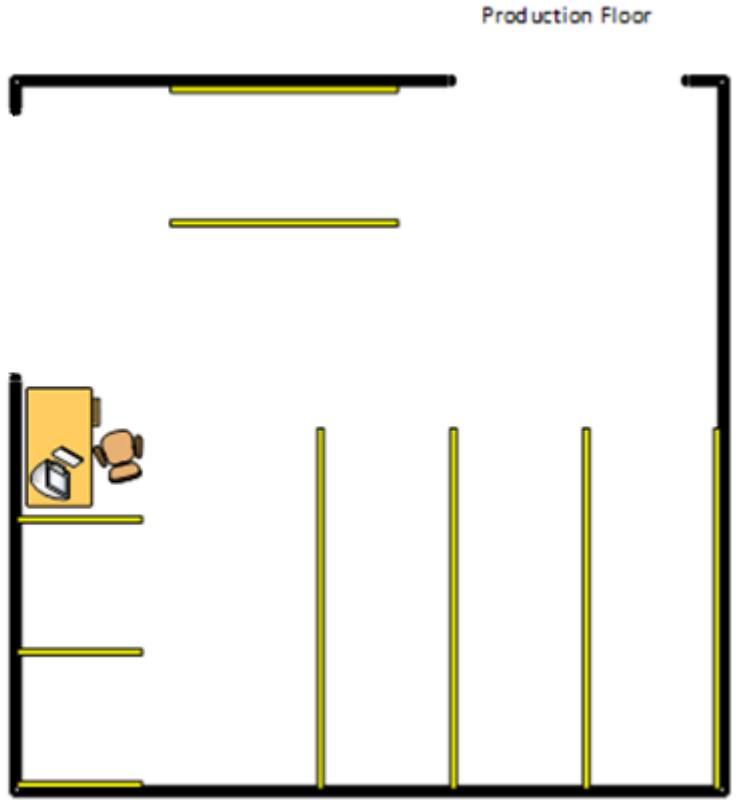




VOICE

TRADITIONAL





VOICE

The Benefits of Voice Smart Sequencing

	Traditional	Optimized	Improvement
Total Moves Required	**40**	**56**	**+29%**
Total Time To Load*	**112 mins.**	**52 mins.**	**+115%**

*** Assumes 2 minutes per move**

The more complicated the scenario, the greater the savings!

How Voice Optimizes Pallet Staging and Loading

1. **Intakes Production Schedules & Customer Orders**
2. **Pre-allocates Pallet Staging Positions by:**
   - **Similar Route and Stop to Mitigate Blockage**
   - **Proximity to Loading Dock to Minimize Truck Loader Travel Time**

How Voice Optimizes Pallet Staging and Loading

3. **Supports Virtual Staging Positions**
4. **Proactively Prompts for Pallet Moves to Prevent Blockage**
5. **Tracks Operator-directed Pallet Moves**
6. **Supports Substitute LPs**
7. **Directs the Staging and Loading of Pallets on Short or Long Sides**

Thank You!

advancedmobile GROUP

The Leading Experts in:

- **Voice Technology**
- **RFID**
- **Mobile Computing**
- **Wireless Infrastructure**
- **Label Printing and Media**

Jim Donahue

Jim.Donahue@advancedmobilegroup.com

+1-856-537-0848