



英杰明自动化

Egemín Automation

Automation for competitive advantage

自动化领域的竞争优势

智能化自动导引小车

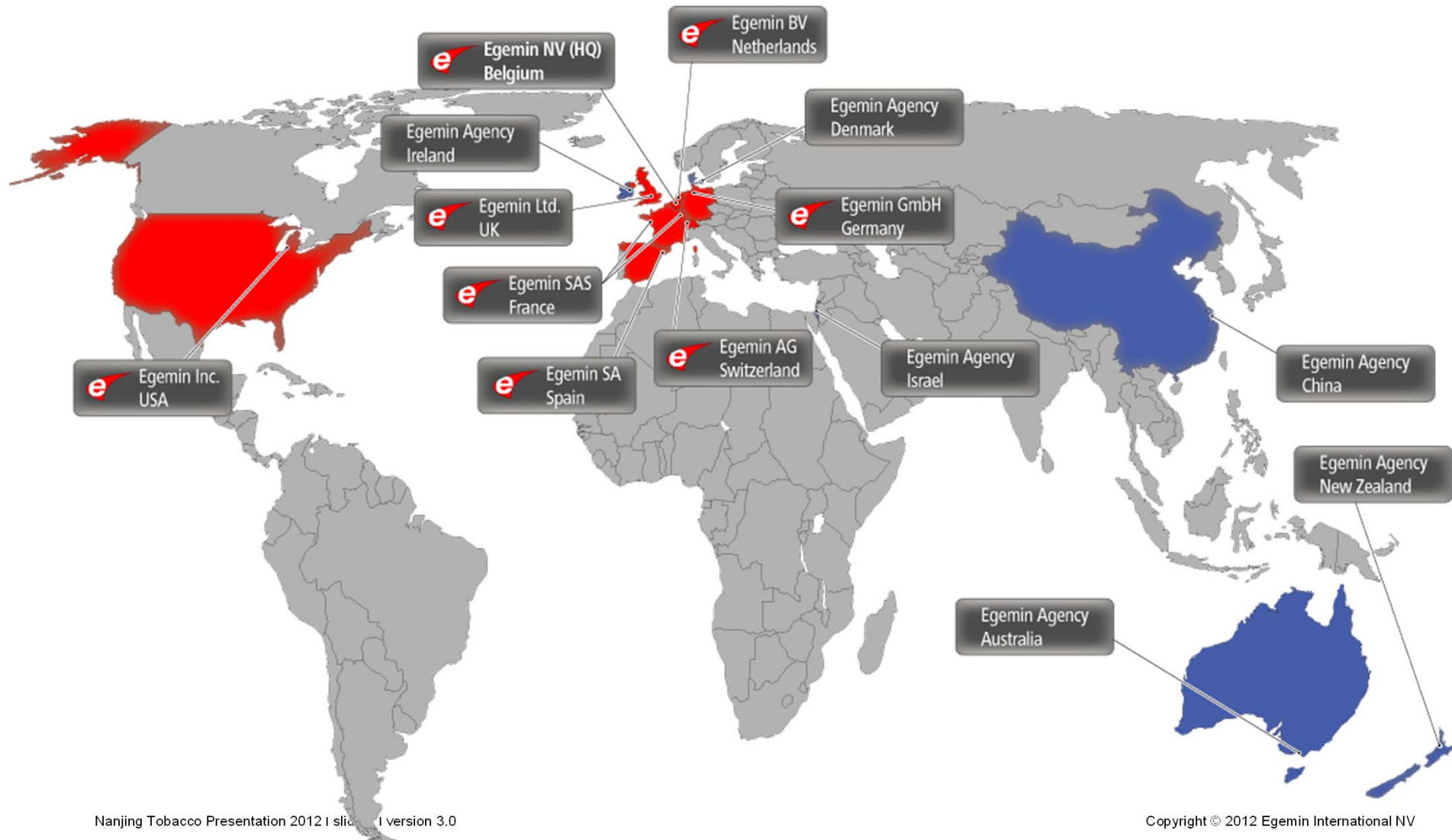
AGV The Human Way

Guido Jansen
VP International

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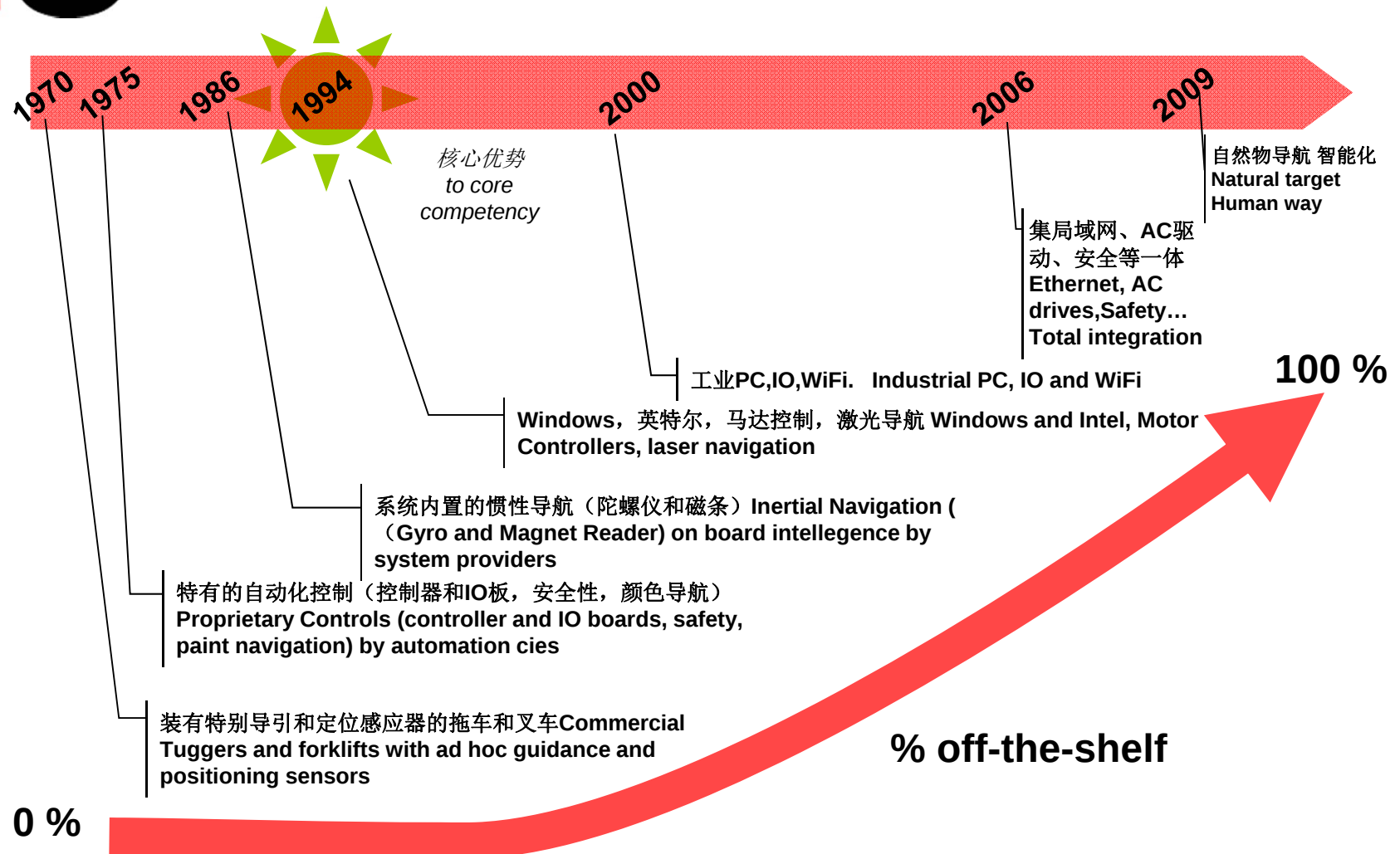
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HANDLING AUTOMATION

英杰明分布 *Egemin world wide Presence*



EGEMIN AGV Market Position 英杰明AGV 市场定位

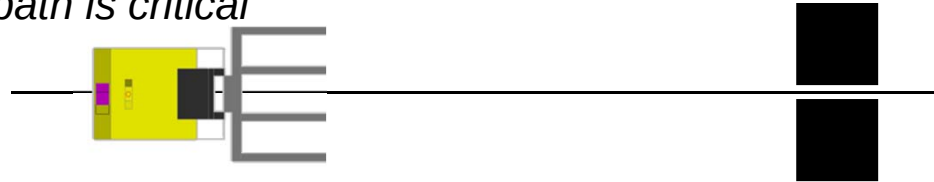
- » 1968年开始自动导引小车的生产AGV business since 1968
- » 行业内最早从事自动导引车研究，并不断发展
Oldest in the Market, going strong
- » 第一家将IPC集成到AGV的公司
First one to integrate IPC on board of AGV
- » 第一家100%OTS的公司First one to have 100% OTS equipment
- » 第一家使用OTS货物搬运的公司First one to use OTS load handling
- » 第一家拥有多种导航方式的公司First one to have multimode navigation
- » 第一家使用自然物导航方式的公司First one to have natural targeting
- » 目标—智能化自动导引车 Towards...the Human way EGV approach



智能化The Human Way

AGV 小车功能回顾 Historical AGV functionality

- AGV 小车沿着设定路线准确运行 AGVs follow fixed paths at a high degree of accuracy
- 载货和小车运行路线有着至关重要的联系 Load positioning relative to the path is critical



焦点Issues

- AGV 与AGV 机械部件的不同 AGV to AGV mechanical differences
- AGV 与AGV 运行轨迹的不同 AGV to AGV tracking differences
- 货物定位的不准确性 Load positioning inaccuracies
- 允许误差 Build-up of tolerances
- 多个单一功能的传感器 Multiple single-function sensors

智能化The Human Way

新的方式—智能化 A new approach – the Human Way

- 基于环境 Based on the environment
- 货物位置判断 Assess the location of the load
- 尽可能的驶近货物 Drive up to the load as closely as possible
- 自我调整适应货物高度 Adjust the mechanism to match the load position

要求This requires

- 动态调整AGV小车运行路线 the AGV to adjust the path dynamically
- 小车根据货物特征自动调整高度 the AGV mechanism to compensate for load alignment

不适用范围 Non-application specific

- 单一的点对点运送 Single-load point-to-point applications
- 深度仓库存储 Deep-lane stacking warehouse storage
- 货车自动装卸 Automatic truck loading and automatic truck unloading

智能化 The Human Way

总结 Overview

- 根据客户需求使用合适的导航传感器 All navigation capable sensors are used when required
- 单一导航系统保证小车在机器, 拖车, 工厂/仓库和深度堆放巷道内的精确导航 Single navigation system ensures accurate guidance between machines, trailer, factory/warehouse floor and deep lane storage
- 充分利用环境里的现有因素 进行导航 The environment is used in addition to known navigation elements (targets, magnets...)
- 智能AGV小车可以根据环境(货物位置, 卡车停放处)自动选择路线 Intelligent AGVs alter the guide path to compensate for the environment (load location, truck location...)

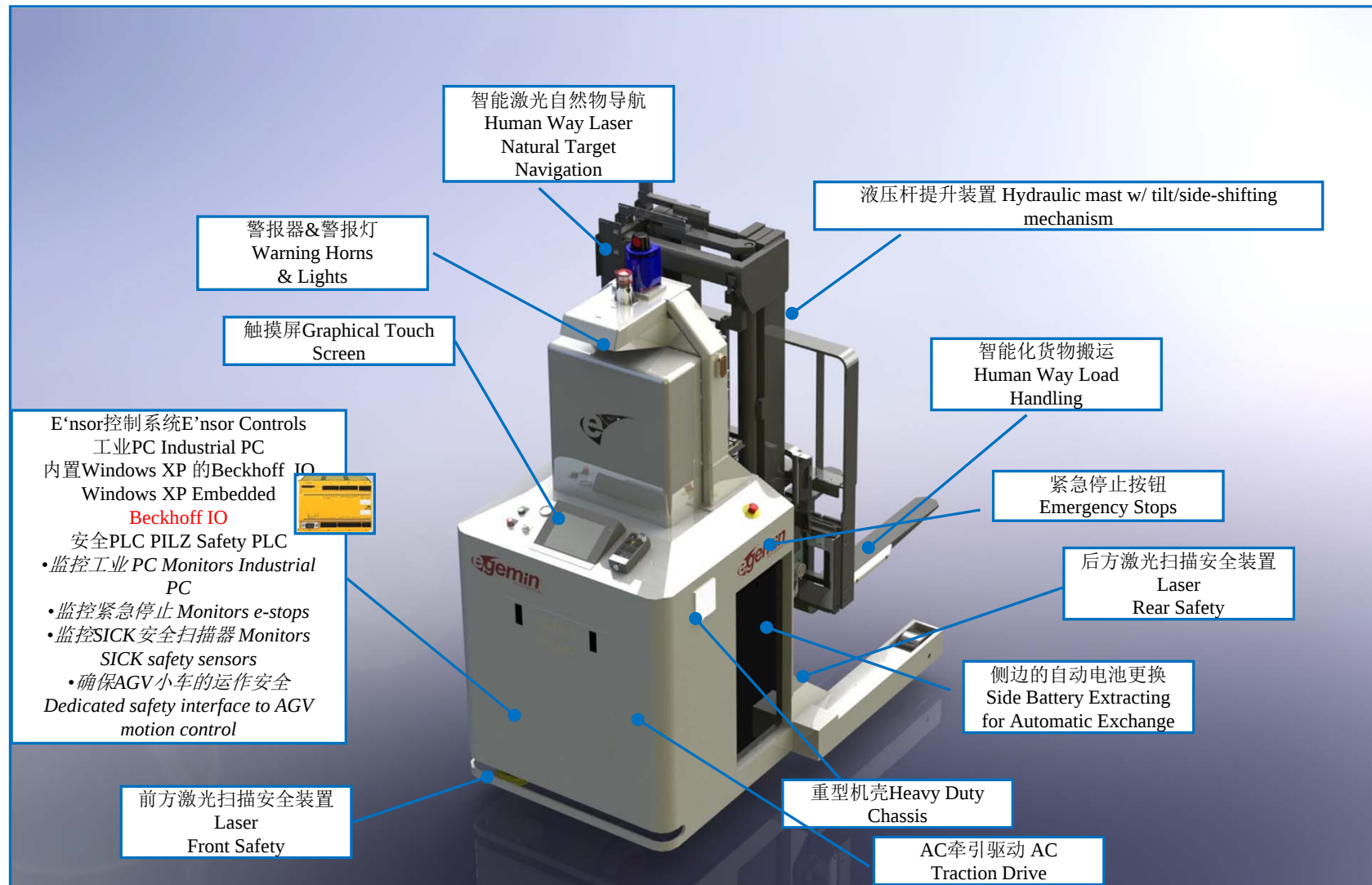
AGV 智能化 AGV The Human Way

一个控制方案 One Controls Solution



所有合适的导航传感器都被不停使用 *All navigation capable sensors are continuously used*

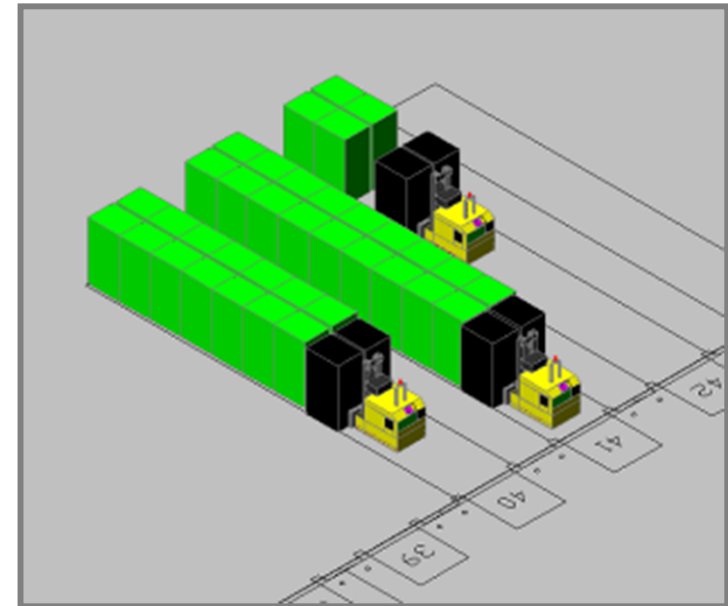
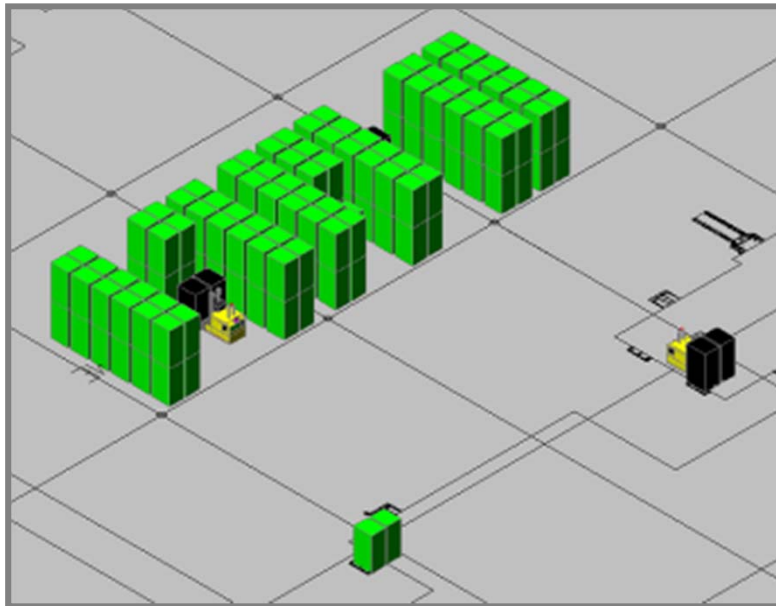
智能化 AGV The Human Way



智能化AGV *The Human Way*

One For All

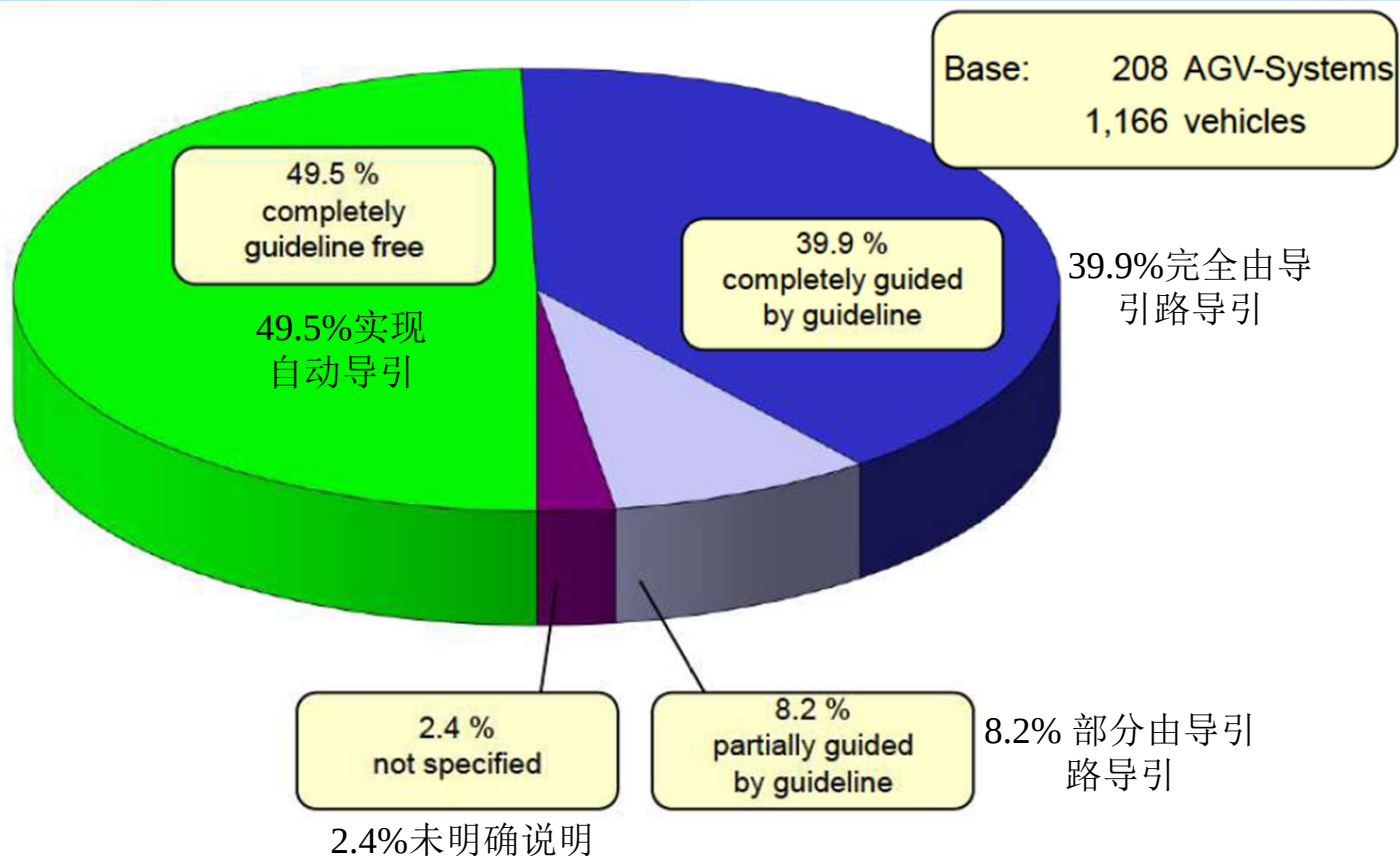
单一的导航系统确保小车在拖车，工厂/仓库地面和深层堆垛区域之间的准确运行 *Single navigation system ensures accurate guidance between trailer, factory/warehouse floor and deep lane storage*



智能化AGV The Human way

Guiding system in new AGV-Systems,
opening 2011 2011年开发的新的AGV导航系统

PSLT
Leibniz Universität
Hannover

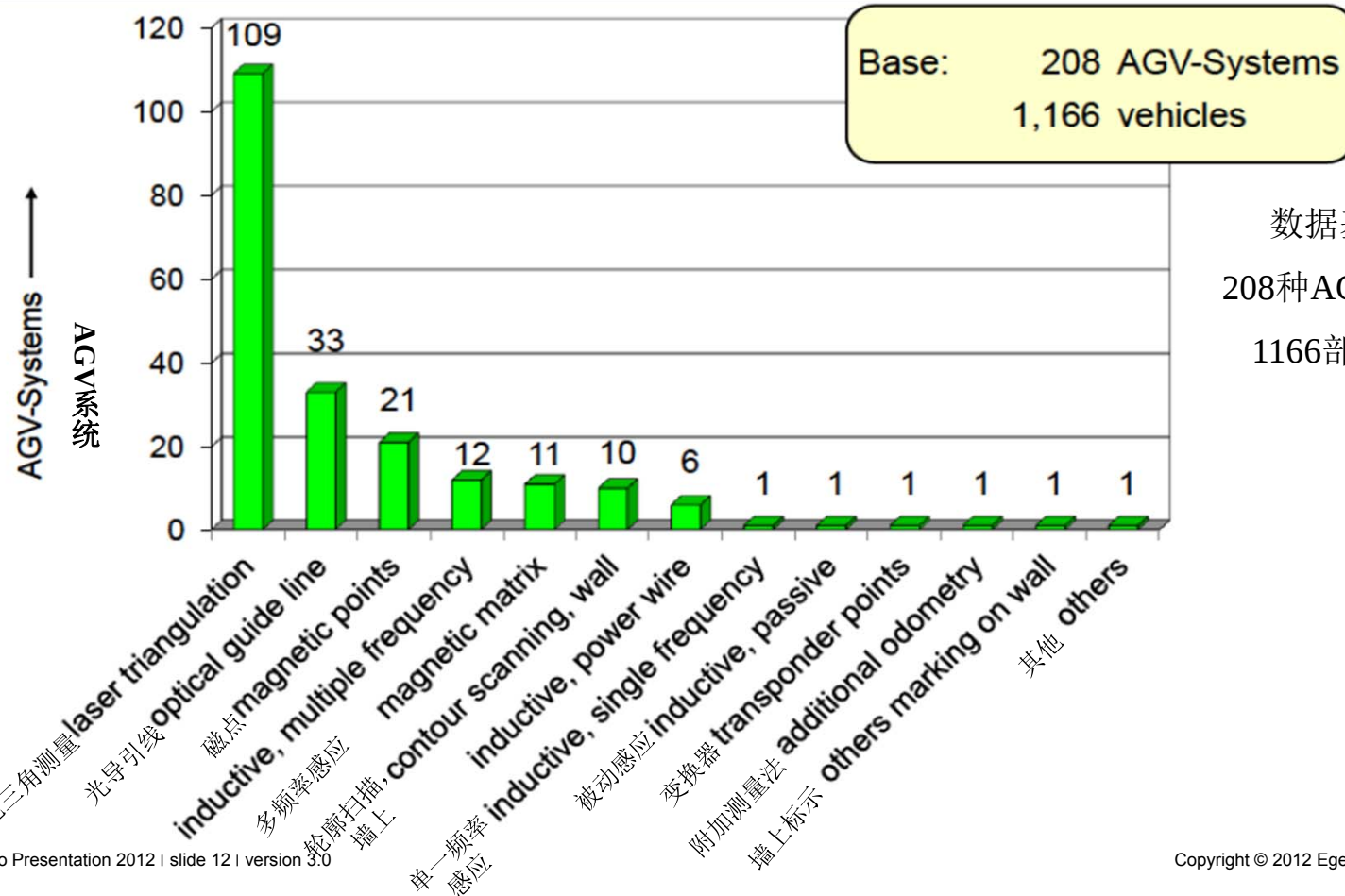


数据来源:
208种AGV系统
1166台小车

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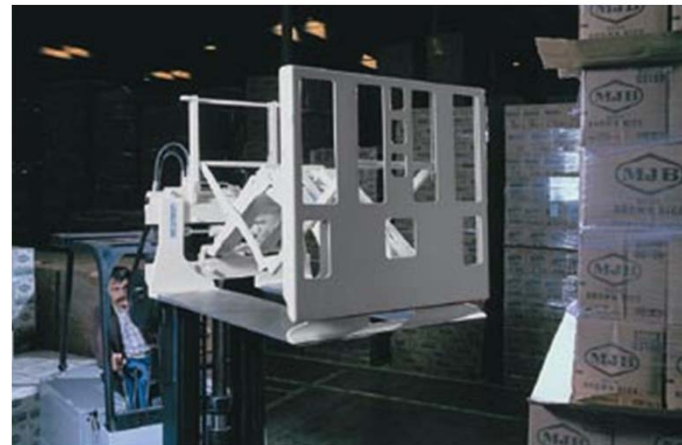
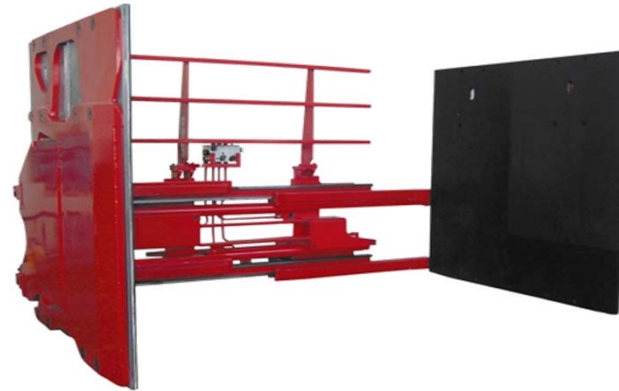
Guiding technique in new AGV-Systems,
opening 2011 2011年开发的新的AGV系统导航技术

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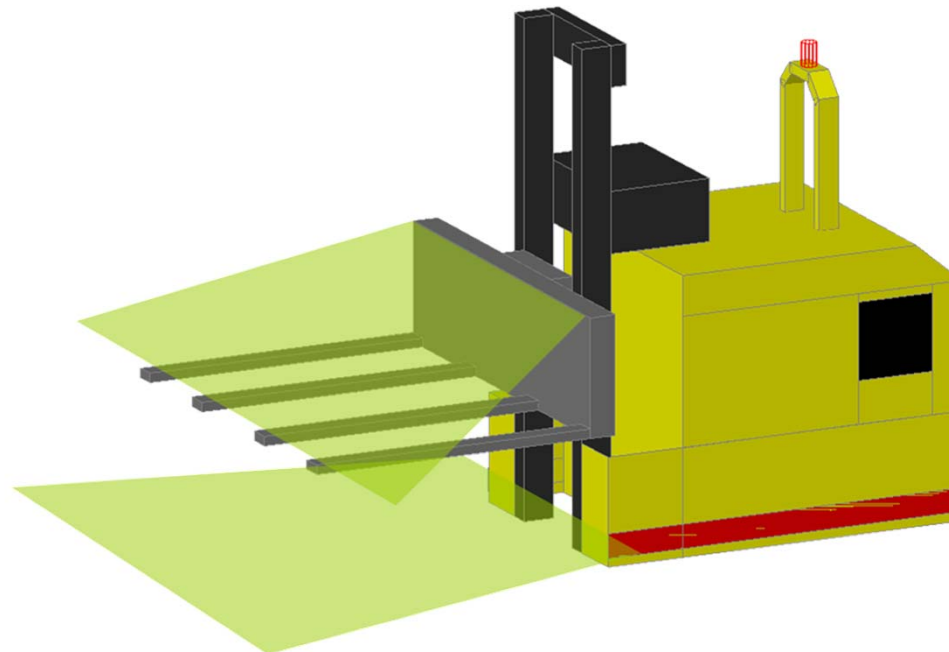
多种夹抱方式 Multi-Plane Positive-Feedback



智能化 AGV The Human Way

多种夹抱方式 **Multi-Plane Positive-Feedback**

- 上货卸货时的主动测量 *Actively measures on-board and off-board loads*
- 反馈的信息让小车可以根据货物进行动态调节 *Feedback provides information for mechanism to dynamically adjust to load*





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Thank you for the Attention

谢谢观赏

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