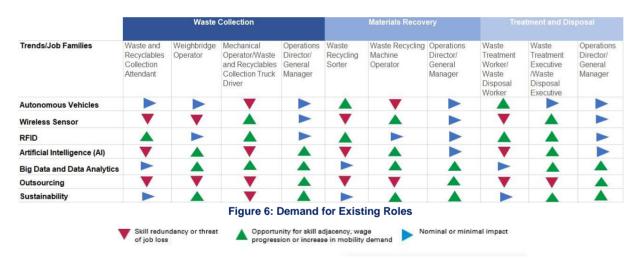## 3.1.3 Demand for Existing Roles

Career levels referenced throughout this paper are defined as follows according to SkillsFuture Singapore (SSG).

As seen below, these are the 3 tracks under Waste Management sector such as Waste Collection, Materials Recovery and Treatment and Disposal. We will analyse the degree of impact on job roles in these categories when key notable trends like AI, Data Analytics and Automation takes place in the near future.

Trends/Job Families	Waste Collection				Materials Recovery			Treatment and Disposal		
	Waste and Recyclables Collection Attendant	Weighbridge Operator	Mechanical Operator/Waste and Recyclables Collection Truck Driver	Operations Director/General Manager	Waste Recycling Sorter	Waste Recycling Machine Operator	Operations Director/General Manager	Waste Treatment Worker/Waste Disposal Worker	Waste Treatment Executive/Waste Disposal Executive	Operations Director/General Manager
Autonomous Vehicles	►	►	▼	►	▲	▼	►	▲	▲	►
Wireless Sensor	▼	▼	▲	►	▼	▲	►	▼	▲	►
RFID	▲	►	▲	►	▲	►	►	▲	▲	►
Artificial Intelligence (AI)	▼	▲	▼	▲	▼	▲	►	▼	▲	►
Big Data and Data Analytics	►	▲	▲	▲	►	▲	▲	►	▲	▲
Outsourcing	▼	▼	▼	▲	▼	▼	▲	▼	▼	▲
Sustainability	►	▲	▲	►	▲	▲	►	▲	▲	▲

Figure 6: Demand for Existing Roles

▼ Skill redundancy or threat of job loss
▲ Opportunity for skill adjacency, wage progression or increase in mobility demand
► Nominal or minimal impact

The **Mechanical Operator/Waste and Recyclables Collection Truck Driver** carries out operational duties using mechanical motorised vehicles in accordance with the assigned schedules. He/she pulls and manage heavy equipment and objects, estimates the weight load to ensure compliance with load limitations, sweeps roads and roadsides while operating a mechanical and motorised vehicle. With the introduction to Automated Vehicles, such roles may be at risk of redundancy since the number of truck drivers required will be significantly reduced. Additionally, with sensor-equipped bins, demand for existing roles such as **Waste Collection Attendant** would fall with reduced collection trips.

IMPACTED JOB ROLES IN THE ENVIRONMENTAL SERVICES INDUSTRY

General Cleaner and Waste Collection Crew

Key job scope

- Increased use of digital tools, robotics and automation
- Increased communication with customer, including troubleshooting operational issues

Skill sets required

- Communication
- Problem Solving
- Robotics and Automation
- Internet of Things

Waste Recycling Sorter

Key job scope

- Increased use of digital tools, robotics and automation

Skill sets required

- Communication
- Problem Solving
- Robotics and Automation
- Internet of Things