FEEDBACK AND COMMON TERMS

Aspen Digital, in consultation with experts from academia, civil society, and industry, developed the following recommendations for how to integrate automation into the manufacturing frontline responsibly.

The first part of this cheat sheet outlines concrete examples of how to solicit feedback from the frontline workforce. The second part defines both technical and job quality terms that we use throughout our work.

Strategies for Worker Engagement

A variety (and frequently a combination) of different mechanisms for incorporating worker voice can be used to ensure that new technology is optimally deployed to solve production pain points. Bottom-up feedback from workers who will be using the tool in their day-to-day is a necessity, because only those workers (not office managers) will be aware of technical and practical nuances in their workflow that could dramatically impact AI performance.

The first step to building a culture of open feedback is having explicit management processes that encourage executives to "pull" improvement from the frontline versus "push" operational directives. High-touch models of feedback, where corporate executives invest time in the frontline, can help management establish mutual trust and respect. This allows frontline workers to leverage their end-to-end perspective and offer concrete suggestions, without fear of losing their jobs.

HIGH-TOUCH OPTIONS

1. Town Halls

2. Small team meetings with an immediate supervisor or plant leadership

3. Hands-on feedback sessions with a vendor

4. Soliciting feedback through organized labor representatives, when applicable

   o *This process can be especially helpful for getting feedback at scale.*

LOW-TOUCH OPTIONS

1. Physical suggestion box or flip board

2. Digital surveys or feedback forms

Make sure to respond to feedback in some form, otherwise low-touch options may not produce constructive criticism!

Case study

Toyota's unmatched quality can be attributed to its <u>focus on worker voice</u>. Contributing to constant improvement is part of everyone's job description. Toyota's culture encourages front-line workers to suggest local improvements and streamline work without the fear of losing their jobs.

Managers actively seek out feedback through group bonding activities, and the firm rewards the team with the winning idea versus the individual. Senior managers are actively encouraged to "go to the front line and listen, which shows respect to those far from the executive suite."

GLOSSARY OF TERMS

Job Quality Terms

FRONTLINE	Frontline workers are typically hourly workers, who aren't managers, making <u>$22 per hour or less</u>, employed in the manufacturing, retail, shipping, and logistics and transportation industries. Within the context of our work, "frontline worker" encompasses operators, mechanics, and other workers who directly interface with machinery in a factory.
UPSKILLING	A process of training a worker in skills intended to lead to career advancement, better pay, and greater systems knowledge and agency.
RESKILLING	Similar to upskilling. A process where a worker is trained to adopt a new skill set, frequently as part of a career transition.
DESKILLING	A process where automation is deployed in a way that limits workers' agency and reduces the amount of knowledge it takes to perform a task, making workers less adaptable and knowledgeable about the larger processes to which they contribute. A deskilled worker gains fewer skills while working.

Technology Terms

ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) has historically referred to a collection of technologies designed to emulate human intelligence. In recent years, the term has become synonymous with machine learning, a set of computer processes used to identify unintuitive patterns in data. Examples of AI today include speech recognition, autonomous vehicle navigation, and the generation of new content, such as text or images.

AUTOMATION

A process where a machine or computer program is used to complete a task instead of a person. While AI is a type of automation, many forms of automation do not use AI.

DATA

Data, like AI, is an umbrella term that covers more than just numbers. The term describes many types of information that are stored and processed on computers. Videos, images, temperature sensor readings, and the location information on your phone are all different kinds of data.

COMPUTER VISION

A field of computer science dedicated to figuring out how to process images and video with a computer in a way that mimics the human visual system. Some examples: inferring depth from a series of 2D images or isolating food on a line that doesn't visually meet quality assurance criteria.

ROBOTICS

Physical machines which are used to execute a variety of actions (such as object manipulation) either in an unsupervised or supervised way.

ALGORITHMIC MANAGEMENT

Use of software, instead of or in addition to a human manager, to set goals, track progress, and assign tasks to a worker.

Acknowledgments