

# The future of work in manufacturing

What will jobs look like in the digital era?

SMART FACTORY MANAGER

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## Summary

In the smart factory of 2025, the changing nature of when, where, and how parts, subassemblies, and final products are made has transformed the role of the human manager at its helm. The smart factory manager (SFM) wears many hats: production operations and quality responsibilities, as well as DevOps (product design/engineering), along with expanded IT and cyber responsibilities. Their expanded responsibilities place them in the unique position of integrating advanced manufacturing, secure connectivity, and actionable data analytics together to drive a new level of overall equipment effectiveness (OEE).

In their expanded role, SFMs are responsible for more of the manufacturing value stream than in traditional manufacturing sites. SFMs determine build schedules and inventory levels based on demand forecasts that have been derived from artificial intelligence (AI) and machine learning algorithms. With their widened aperture, SFMs apply their judgement to set parameters related to allocation of product, profitability, or new product introductions, for example.

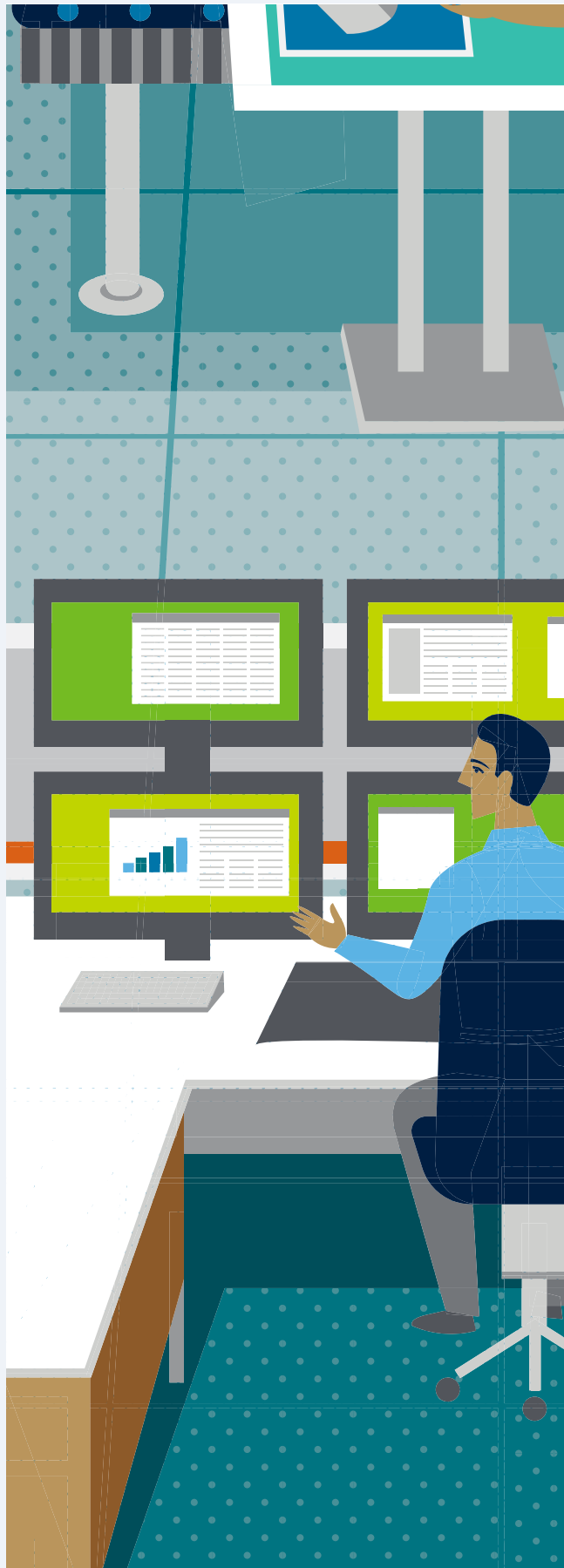
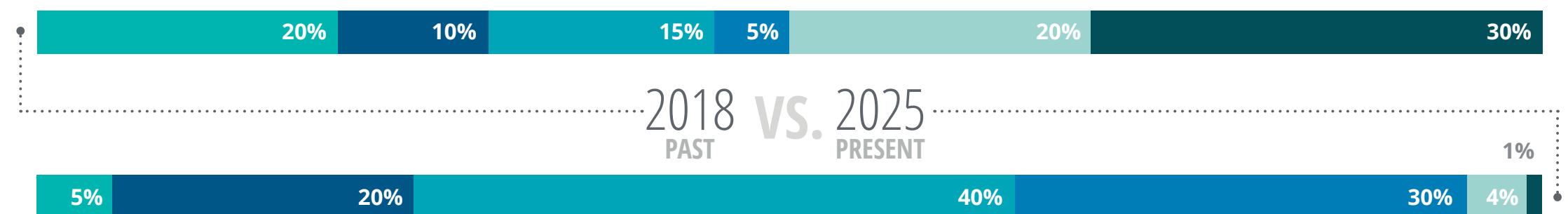
SFMs work with the director of quality to identify data patterns to predict quality issues and direct actions in response to these insights. They also leverage predictive maintenance analytics dashboards to proactively identify machines that are operating outside of established parameters and direct preventative maintenance to address the issue.

## Responsibilities

- Identify and facilitate the addition of advanced technologies that will enable self-optimization of the connected assets on the production line(s).
- Build a variety of automated manufacturing capabilities, including: robot cutting, computerized knitting, and 3D printing.
- Work with the production team to manage the stream of customer requirements for unique configurations of products that come into the factory through automated demand planning, e-commerce portals, and connected products in the field.
- Manage the installation, operations, and maintenance of all levels of the smart factory solutions “stack” that delivers continuous connectedness, including establishing service level agreements (SLAs) with vendors and ensuring cybersecurity protocols are followed.

## Time spent on activities

■ Resource planning  
 ■ Collaboration  
 ■ Analysis and innovation  
 ■ Process optimization  
■ Share analysis and feedback with process-product managers  
 ■ Reporting and administrative tasks





# DAVID BADGLEY

## SMART FACTORY MANAGER

Zimbals Products & Services | Lexington (KY), US

Proficient in applied technology, automation, connectedness, and driving OEE. Leader of factory innovation via smart use cases. Experienced in change management and robust value chain integration.

### Experience

#### Smart factory manager

Zimbals Products & Services Jun 2024–present | 1 year 4 months

Key sponsor of smart factory initiative with executive responsibilities to develop connected solutions. Advancing company's cybersecurity capabilities to drive productivity and efficiencies.

#### Transformation consultant

Zimbals Products & Services Jan 2023–Jun 2024 | 1 year 6 months

Zimbals' smart factory evangelist; implemented use cases by applying advanced technologies to assets to develop smart, connected environment.

#### Automation and innovation lead

Bright Lights Pvt Ltd Jan 2022–Dec 2022 | 1 year

Led company's technological innovation efforts, overseeing a team of RPA developers; assisted the teams in integrating new technologies into the company's operational systems.

#### RPA specialist

Bright Lights Pvt Ltd Oct 2019–Dec 2021 | 2 years 2 months

Provided RPA solutions to reduce manual efforts and built a Web platform to address client needs. Visionary in exploring new technologies and innovation in targeted business processes.

### Education

#### Illinois Institute of Technology, School of Applied Technology

Industrial Technology and Management (INTM)  
Master of industrial technology and operations  
2017–2019

#### Illinois Institute of Technology, College of Science

Bachelor of science in computer science  
2014–2017

### Other certifications

- **6SIGMA**  
Lean Six Sigma Green Belt in operational excellence
- **INTM Certificate Program**  
Industrial enterprises

### Skills and endorsements

- + Operational excellence · 430  
Endorsed by **Syan** and **Meera**, who are highly skilled at this
- + Deep learning · 412  
Endorsed by **Josephine**, who is highly skilled at this
- + Innovation · 350  
Endorsed by **Tina** and **Melissa**, who are highly skilled at this
- + Automation · 324  
Endorsed by **Ritesh** and **Daniel**, who are highly skilled at this
- + Digital prototyping · 246  
Endorsed by **Tom** and **Kiara**, who are highly skilled at this
- + Industrial technology · 195  
Endorsed by **Edward** and **Lee**, who are highly skilled at this
- + Client management · 186  
Endorsed by **Farida**, who is highly skilled at this
- + Collaboration · 85  
Endorsed by **Danny** and **Ruby**, who are highly skilled at this
- + Change management · 79  
Endorsed by **Jennifer**, who is highly skilled at this
- + Project management · 68  
Endorsed by **Diana** and **Marry**, who are highly skilled at this

- **INTM Certificate Program**  
Industrial project management
- **OpenLearnOrg**  
Collaborating for results

# TOOLBOX

THE TOOLBOX SUPPORTS THE WORKER AS A WHOLE—IN ACHIEVING EXTERNAL OUTCOMES SUCH AS PRODUCTIVITY AS WELL AS INTERNALLY FOCUSED ONES SUCH AS DECISION-MAKING AND LEARNING.

## Productivity



### Venus

This AI-powered, voice-enabled digital assistant provides a conversational interface for all productivity-related tasks, from scheduling to finding answers to questions and checking the status of products and projects.



### Gen4-Conservatory

Smart meeting rooms for teams that are colocated but are from different functions. Smart-glass boards plugged with AI-enabled devices can pull data from multiple sources and conduct basic data transformation. Voice-activated, these devices can operate with basic sound commands. These capabilities help the data team in ideation and offering formulation.



### VizWizard

A visualization tool that can create graphs and infographics with minimal text inputs from the user. It is also capable of creating topline results based on information available in charts.



### Symphony

This software suite runs simulations and connects smart factory managers with other resources—people, machines, and systems—for data-driven digital manufacturing. Using advanced real-time analytics, it helps smart factory managers create models and optimize manufacturing production performance.



### VirtuMeet

This AR smart-glass conference room with AI capabilities allows global partners to meet and collaborate, overcoming the barriers of physical separation. With built-in AI, AR screens can present short bios or other relevant information about attendees as the user pans across their faces.

## Decision-making



### Smart Dash

A visual display that presents data, live information, and analysis from multiple sources to facilitate informed decision-making.



### Sixth Sense

A tool that incorporates machine learning, cognitive computing, and AI to detect macro trends in the broader environment.



### Orderectory

This order directory is a dashboard for inventory-level visibility across different warehouses and facilities.



### RealConnect

This application enables an engineer to seamlessly interact with suppliers, partners, customers, and the broader ecosystem.

## Learning



### ELWIE

(enabling learning, wellbeing, (personal) interest, and (overall) excellence)

A mobile bot and a personal smart wellbeing assistant that takes care of professional and personal wellbeing. It can suggest new learning opportunities as well as help to plan vacations or leaves based on personal interests.

## Smart use cases

For more information, visit [Manufacturing goes digital: Smart factories have the potential to spark labor productivity.](#)

- Engineering collaboration and digital twin (Digital upgrading and engineering twin, or DUET)
- Advanced manufacturing (3D printing lab)
- Command center
- RPA (gen-4 production facility)
- Quality sensing and detection (RTD tower)
- Smart conveyance
- Smart WIP warehousing solution

# A DAY IN THE LIFE

07:30 AM

David starts his Monday morning by dropping his kids off at school, when Venus reminds him about a materials delivery scheduled for the Kentucky plant. He asks Venus to access Orderectory and highlight the real-time location of the delivery truck on his car console. He can see the materials will be at the facility in time for the scheduled production run.

08:30 AM

As David enters the gen-4 production facility, Venus checks him in and activates RealConnect on his workstation. He heads toward a new use case he's helping to pilot. It's a smart WIP warehousing solution. IoT data scientists are working together with technology vendors to ensure cybersecurity protocols and the company's security standards are maintained. David performs a few dry runs to ensure the solution is functioning as designed. These iterations are uploaded on Symphony, and Hema, a [digital twin engineer](#), gets an update of this on the DUET system.

09:30 AM

David reaches his workstation, where RealConnect highlights two requests that need to be handled as top priorities. The first request is from Zimbal's key customer, requesting some design customization in their next order. David asks the 3D printing lab to develop an inspection-ready prototype. The second request is from one of their valve customers, who has increased their order size and requested delivery for Thursday. David updates Orderectory to recalibrate the demand projection. The system highlights three facilities that have product in their warehouse and can deliver in a day to Kentucky. David reaches out to Jake, a [predictive supply network analyst](#), and asks him to manage this transfer.

10:30 AM

David takes a coffee break, when Elwie alerts him of elevated blood pressure levels. David opts for a decaffeinated green tea instead. He then connects with Charles, the [robot teaming coordinator](#) monitoring all the human-machine collaborations at the gen-4 production facility. Charles has successfully implemented three Smart Conveyance systems in production. The command center LCD is showing green for increased throughput ratio, driven by the new technologies. Yet the RTD tower is highlighting a rejection rate of 12 percent, higher than the target rate of 2 percent. David calls Rupert, the quality director, who informs him of an evening connect with the quality team of the Philadelphia facility who had to troubleshoot the same issue. He then loops in Charles to start working on a solution.

12:00 PM

Venus reminds him about his "new use cases to test" list. Taking the cue, David plans his lunch with an IoT data scientist team. The team liked his idea about a prescriptive service tool. And they plan to run the simulations in the gen-4 conservatory with their aftermarket-sales team to develop a feasible service model.

01:00 PM

Back at his desk, David opens Smart Dash. Summary screens show all use cases are going well. He opens the predictive maintenance page, highlighting all of Zimbal's connected products installed in various client locations. Downloading a few key highlights, David shares these using VizWizard with his aftermarket team, asking them to analyze these for new service opportunities.

02:00 PM

David's mobile device shows an update from Charles, who shares the status of fixing the quality issue. Charles has already initiated a simulation of the proposed robot movement sequence model in Symphony and will be meeting IoT data scientists to discuss a timeline for reconfiguring the robotic arm's sequence.

04:30 PM

David and Rupert log into VirtuMeet to connect with the Philadelphia quality team, and they start analyzing the situation. Smart Dash records all the information, runs a few models using Sixth Sense data, and highlights the key results for the live discussion. The team finalizes the quality models and uploads them on DUET's cloud. Digital twin engineers will run these models and will share their results. The team is optimistic about these models achieving their target rejection rate.

05:30 PM

David has had quite a productive day today. Happily, he heads toward his car, setting the navigation for home, when Elwie reminds him about his daughter's dance recital. He changes the location to the auditorium address to make the 6:00 p.m. performance.

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