

New Business Models for the Manufacturing of the Future

The **2023** World Manufacturing Report

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New Business Models for the
Manufacturing of the Future

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Why Manufacturing Business Models Matter

WHY DOES MANUFACTURING BUSINESS MODEL INNOVATION MATTER?

- Competitive advantage
- Adaptation to technological
- Sustainability and environmental
- Risk mitigation
- Market expansion
- Cost efficiency and operational excellence
- Customer-centricity approaches
- New income sources
- Talent attraction and retention



HOW DOES MANUFACTURING BUSINESS MODEL INNOVATION IMPACT THE SECTOR?

- Enhanced customer experience
- Efficiency and productivity improvement
- Supply chain optimisation
- Digital transformation
- Collaborative ecosystems
- Risk management
- Customisation and flexibility
- Cost reduction
- Sustainable practices
- Servitisation
- Rapid prototyping



WHAT ARE THE CHALLENGES OF MANUFACTURING BUSINESS MODEL INNOVATION?

- Resistance to change
- Skills gaps
- Regulatory compliance
- Cultural shift
- Market acceptance
- High initial costs
- Data security concerns
- Uncertain return on investment (ROI)
- Lack of standardisation





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Global Competition is Changing: Manufacturing Business Models Should Too

MANUFACTURING BUSINESS MODEL INNOVATION TRENDS

- **Digital economy:** from a physical economy to a digital economy
- **Data Economy:** from data as a by-product to data as a product.
- **Artificial Intelligence Economy:** from human intelligence systems to artificial intelligence systems.
- **Mass-Customisation Economy:** from mass-products and services to mass-customized and personalized products and services.
- **Servitisation Economy:** from products to services and product-service systems.
- **Circular Economy:** from linear manufacturing processes and value chains to closed-loop manufacturing processes and value chains.





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New Business Models for the Future of Manufacturing and How to Use Them



Digital Business Models

DIGITAL BUSINESS MODEL CANVAS

Key Partners

- ✓ Data analytics and AI tools providers
- ✓ Data storage and standardisation providers



Key Activities

- ✓ Data collection and analysis across entire value chains or ecosystems, serving multiple customers
- ✓ It is combined with specific, individual services and knowledge



Key Resources

- ✓ Data collection and standardisation tools
- ✓ Big Data analytics
- ✓ Artificial Intelligence



Value Propositions

- ✓ Sharing data allows multiple stakeholders to optimise existing or uncover unknown potentials
- ✓ Optimisation and insights regarding existing processes when needed for customer
- ✓ Services targeted for specific purposes, such as reducing downtime or improving quality, combined with services



Customer Relationship

- ✓ Data collection and analysis conducted constantly, but presentation to customers only when needed or beneficial



Channels

- ✓ Personal and virtual channels
- ✓ Digital platforms for collaboration across stakeholders



Customer Segments

- ✓ Individual customers as well as entire supply chains and ecosystems



Cost Structure

- ✓ Investments in data analytics and AI tools if developed internally
- ✓ Scalable costs if provided externally



Revenue Streams

- ✓ Licence, model, subscription model
- ✓ Pay-per-use, pay-per-feature
- ✓ Pay-per-output, pay for guaranteed results





Data-driven Business Models

DATA-DRIVEN BUSINESS MODEL CANVAS

Key Partners

- ✓ Platform providers
- ✓ IT suppliers
- ✓ Customers as co-creators
- ✓ Suppliers as co-creators
- ✓ Analytics providers
- ✓ IoT providers



Key Activities

- ✓ Knowledge management
- ✓ Data strategy
- ✓ Data collection
- ✓ Data integration
- ✓ Data analysis
- ✓ Data security and compliance



Key Resources

- ✓ Data pools
- ✓ Clouds
- ✓ Computing power
- ✓ Smart products or environments
- ✓ Knowledge base
- ✓ Installed base



Value Propositions

- ✓ Flexibility
- ✓ High level of customisation
- ✓ Data-driven value creation
- ✓ Predictive quality
- ✓ Optimisation
- ✓ Improved risk management



Customer Relationship

- ✓ Personalisation and customisation
- ✓ Feedback loops
- ✓ Community building
- ✓ Customer support and service



Channels

- ✓ Data integration platforms
- ✓ AI-enhanced supply chain
- ✓ Data analytics dashboards
- ✓ Digital twins



Customer Segments

- ✓ Data-driven segmentation
- ✓ Micro-segmentation
- ✓ Lifecycle stages



Cost Structure

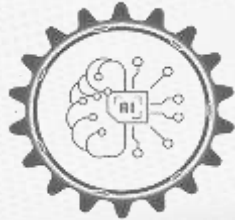
- ✓ Energy
- ✓ Reduce production costs
- ✓ Reduce waste
- ✓ Data management costs
- ✓ Network and connectivity costs
- ✓ Data compliance costs



Revenue Streams

- ✓ Data-driven manufacturing output
- ✓ Supply chain optimisation services
- ✓ Sustainability services
- ✓ Risk mitigation services





AI-based Business Models

AI-BASED BUSINESS MODEL CANVAS

Key Partners

Technology Provider:

- ✓ Data science platform / IDE / development kits / libraries / bundles
- ✓ Foundations / large tech companies / open source developer / libraries supplier...

Service Provider:

- ✓ Hosting service (platform / cloud operator)
- ✓ Security services
- ✓ Regulatory services
- ✓ Financial services
- ✓ Marketing services

Solution Provider:

- ✓ Software development firms
- ✓ AI consultancy firms
- ✓ AI start-ups
- ✓ AI research institutes and hubs
- ✓ Software-as-a-service (SaaS) companies
- ✓ AI as a service 

Key Activities


- ✓ Strategic vision and planning
- ✓ Use case identification
- ✓ Data strategy and management

Modeling:

- ✓ AI technology / resource / algorithm selection
- ✓ Feature engineering
- ✓ Feature selection

- ✓ Prototyping and proof of concept

Deployment:

- ✓ Scalability, integration with existing business processes
- ✓ Revisioning
- ✓ Monitoring (model drift) and optimisation 

Key Resources

- ✓ Physical / hardware
- ✓ Software
- ✓ Human resources
- ✓ Dynamic data-based ecosystems 

Value Propositions

- ✓ Newness
- ✓ Innovativeness
- ✓ Cost reduction
- ✓ Connectivity enhancement
- ✓ Reliability enhancement
- ✓ Availability enhancement
- ✓ Better user experience

Customer Relationship

- ✓ AI-based self service
- ✓ Personal assistance 24/7
- ✓ Automated service
- ✓ Virtual community
- ✓ Enhanced co-creation
- ✓ Seamless customer journey
- ✓ Hyper-personalised delivery
- ✓ Loyalty programmes / Reward programmes 

Channels

- ✓ Direct access (app stores, Model Zoo, pre-installed / pre-configured with the equipment)
- ✓ Indirect access (API integration / through API calls) 

Customer Segments

- ✓ Manufacturing companies
- ✓ Original equipment manufacturer
- ✓ Third party supplier
- ✓ Supply chain actors
- ✓ Stakeholders in the industrial ecosystem
- ✓ Other AI business models (interaction h/w machines) 

Cost Structure



Revenue Streams





Mass- Customisation Business Models

MASS CUSTOMISATION BUSINESS MODEL CANVAS

Key Partners

- ✓ Software developers
- ✓ Data analytics firms
- ✓ Customer involvement in co-creation
- ✓ Facilitation of product and service personalisation



Key Activities

- ✓ Customer engagement
- ✓ User-friendly product configuration tools
- ✓ Flexible and robust production
- ✓ Efficient and effective choice navigation for customers
- ✓ Complexity management
- ✓ Lean change management



Key Resources

- ✓ Digital technologies
- ✓ Data analytics
- ✓ Flexible manufacturing capabilities
- ✓ Robust production processes



Value Propositions

- ✓ Tailored and personalised solutions
- ✓ Alignment with specific customer requirements and desires
- ✓ Unique value proposition
- ✓ I-designed-it-myself effect in B2C markets



Customer Relationship

- ✓ Ongoing, interactive relationships
- ✓ Active customer involvement in product design and configuration
- ✓ Deeper and more personalised brand connection



Channels

- ✓ Online platforms
- ✓ Physical stores
- ✓ Easy product configuration
- ✓ Personalised ordering options



Customer Segments

- ✓ Narrow, highly segmented customer groups
- ✓ Individual customers
- ✓ Diverse preferences and needs catered to



Cost Structure

- ✓ Individualisation process costs



Revenue Streams

- ✓ Customised product sales
- ✓ Premium pricing for personalised options
- ✓ Dual revenue streams
- ✓ Potential for bundling products with customised services





Servitised Business Models

SERVITISED BUSINESS MODEL CANVAS

Key Partners

- ✓ Service providers
- ✓ IT providers
- ✓ R&D companies
- ✓ Service ecosystem companies



Key Activities

- ✓ Service design and delivery
- ✓ Continuous product-service integration and innovation
- ✓ Monitoring and control
- ✓ Establish an ecosystem plan



Key Resources

- ✓ Service-oriented personnel and training resources
- ✓ Technology platforms for service delivery (e.g. IoT, analytics tools)
- ✓ Strong financial and R&D capacity
- ✓ Logistic centres
- ✓ Customer feedback and/or product usage data



Value Propositions

- ✓ Enhanced product value through added services
- ✓ Tailored solutions and outcomes for customers
- ✓ Improved "green" credentials



Customer Relationship

- ✓ Personal assistance
- ✓ Co-creation of value and solutions with customers
- ✓ Continuous service interactions and communication



Channels

- ✓ Sales channels configuration
- ✓ Service portal or platforms for delivery and communication
- ✓ Web-based platforms for solutions configuration



Customer Segments

- ✓ Segmented customer groups that value holistic solutions
- ✓ Focus on customers seeking outcome-based contracts
- ✓ Experts and green customers



Cost Structure

- ✓ Investments in service infrastructure and technology
- ✓ Ongoing costs for service delivery and relationship management
- ✓ Direct labour costs



Revenue Streams

- ✓ Invoicing (directly or indirectly)
- ✓ Pay-per-use model
- ✓ Potential for up-selling or cross-selling services





Circular Business Models

CIRCULAR BUSINESS MODEL CANVAS

Key Partners

- ✓ Third-party reverse logistics providers for take-back schemes
- ✓ Governments and regulatory bodies
- ✓ Customers become suppliers
- ✓ Funding agencies, venture capitalists and investors



Key Activities

- ✓ Circular product redesign
- ✓ Service management and tailored services
- ✓ Reverse logistics planning and control
- ✓ Tracking and monitoring



Key Resources

- ✓ Secondary materials from closed-loops
- ✓ Dynamic capabilities
- ✓ Digital tools



Value Propositions

- ✓ Environmental value (resource efficiency, resilience to resource scarcity)
- ✓ Social value (increased customer loyalty, community engagement)
- ✓ Economic opportunities (longevity and better-quality products leads to cost reduction, market differentiation)



Customer Relationship

- ✓ From one-time to long-time relationships
- ✓ Storytelling to engage and raise environmental and social awareness



Channels

- ✓ Customer engagement in take-back systems
- ✓ Online and offline engagement channels



Customer Segments

- ✓ Environmentally committed, aware and conscious customers
- ✓ Access over ownerships mentality
- ✓ Young generations (Greta effect)



Cost Structure

- ✓ Labour costs (labour-intensive activities such as remanufacturing)
- ✓ Financial costs (higher time mismatch between high initial investments and revenues split over time)
- ✓ Maintenance and service lifecycle costs
- ✓ Reverse logistics costs



Revenue Streams

- ✓ Cost savings (secondary raw materials)
- ✓ Stable cash flows over time (leasing, pay-per-x, etc.)





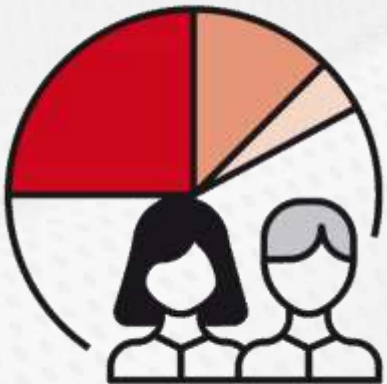
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10 Key Recommendations for Successfully Deploying Innovative Manufacturing Business Models

1 EMBRACE A CUSTOMER-CENTRIC INNOVATION APPROACH TO FOSTER LOYALTY AND DRIVE GROWTH

- **Skills:** Train the workforce in design thinking, user experience (UX), and customer relationship management (CRM).
- **Technology:** Embrace technologies that enable deeper insights into customer behaviours and preferences.
- **Policy:** Adopt transparent data policies and robust cybersecurity measures to safeguard customer privacy.



2 CREATE SUSTAINABLE VALUE PROPOSITIONS BASED ON THE TRIPLE BOTTOM LINE FOR A COMPETITIVE EDGE

- **Skills:** Equip teams with tools and knowledge about sustainability thinking to better design value propositions.
- **Technology:** Reflect on the usefulness and applicability of digital solutions as means for more sustainable products and services.
- **Policy:** Create supporting organisms that guide organisations as they intend to embed sustainability in their offerings portfolio.



3 AIM FOR MASS-CUSTOMISED AND PERSONALISED VALUE PROPOSITIONS TO CREATE HIGHER BENEFITS FOR CUSTOMERS

- **Skills:** Equip teams with training on consumer behaviour and trend analysis to anticipate and cater to evolving preferences.
- **Technology:** Implement systems that facilitate customisation at scale, from modular design to advanced manufacturing techniques.
- **Policy:** Foster a regulatory environment that encourages innovation while maintaining standards and meeting consumer protection norms.



4

DEVELOP NEW SALES CHANNELS FOR HYBRID REVENUE STREAMS

- **Skills:** Manufacturing companies must utilise a variety of skills, including communication, technical proficiency, adaptability, adoption of sales technology, and networking, to reach the global market through hybrid sales channels.
- **Technology:** To serve customers where they prefer to buy, hybrid sales channels combine various channels, such as e-commerce platforms, call centres managed by salespeople, and in-person stores.
- **Policy:** Customers should be given the confidence to use digital or hybrid sales channels by determining the appropriate permission and access levels, taking into account specific data privacy concerns.



5 FOSTER TIGHTER BONDS BY CREATING IMPROVED CUSTOMER RELATIONSHIPS

- **Skills:** Develop soft skills, such as openness, communication, and trust.
- **Technology:** Make use of digital technologies such as sensors to achieve lifecycle visibility and traceability that can help identify new offerings.
- **Policy:** Create frameworks and incentives that promote collaboration to create a space for improved customer-centric business models.



6

UNLOCK VALUE POTENTIAL BY HARNESSING AI AND DATA ANALYTICS FOR NEW REVENUE STREAMS

- **Skills:** Increase focus on the development of AI and data analytics in each team to promote data monetisation.
- **Technology:** Evaluate the trustworthiness of data exchange processes and proactively address data-sharing concerns.
- **Policy:** Develop regulations that support new revenue distributions and create standards that allow successful collaboration in the shape of data-driven business models.



7 BALANCE KEY RESOURCES TO AVOID THEIR OVERAND UNDERESTIMATION FOR SUSTAINABLE OPERATIONS

- **Skills:** Analytical skills and adaptability are crucial for anticipating and navigating resource challenges, while strategic planning and cross-functional collaboration ensure a well-rounded approach to resource management in a dynamic market.
- **Technology:** Robust data management and predictive analytics tools enable informed decision-making, while agile technologies and advanced supply chain systems support the adaptability needed for effective resource allocation.
- **Policy:** Continuous monitoring and risk management policies facilitate proactive adjustments to resource utilisation, and a focus on ethical data use, innovation, and flexibility in policies ensures responsible and adaptive practices.



8 PRIORITISE LOCALISED MANUFACTURING AND STRENGTHEN CORE COMPETENCIES FOR MARKET AGILITY AND SUSTAINABILITY

- **Skills:** Foster expertise in local market dynamics, supply chain management, and niche production techniques.
- **Technology:** Invest in advanced manufacturing systems that allow for agile production and localisation adjustments based on demand.
- **Policy:** Advocate for incentives and frameworks that promote domestic manufacturing and sourcing while maintaining global competitiveness.

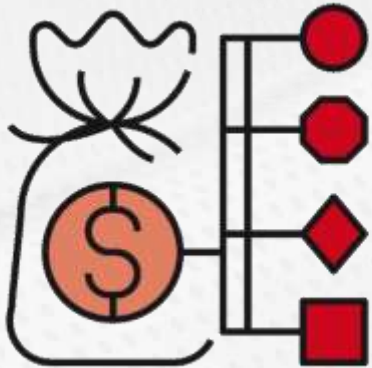


9 EXPAND PARTNERSHIPS BEYOND TODAY'S VALUE CHAINS' TRADITIONAL BOUNDARIES TO PREPARE FOR NEW CHALLENGES AND RISKS



- **Skills:** Manufacturers must prepare their workforce to be creative and mindful in their approach to establishing new partnerships and identifying future key partners.
- **Technology:** Existing partnerships across the value chain will intensify and integration of digital technologies will deepen, even in core processes.
- **Policy:** New, previously unexpected partners will enter the ecosystem and evolve into key partners driven by the need for innovative, new business models highlighting the need for effective policy guiding and simplifying the process.

10 OVERCOME INVESTMENT BARRIERS TO ESTABLISH TRUSTING RELATIONSHIPS TO UNLEASH CONTINUOUS CASH FLOW FROM ASSETS



- **Skills:** Upskilling plays a major role in the success of manufacturers as sales become more technical in nature compared to traditional models.
- **Technology:** Sustainable financial planning will be more complex compared to the traditional sales-based business models and will be data-driven and technology-supported.
- **Policy:** New, innovative manufacturing business models impact cost structure and require new financial instruments and policy.



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THANK YOU ALL!



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**It is time to reimagine and reshape
the way the manufacturing sector
operates to ensure sustainable
growth and resilience in the long
run.**



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