

## The robotics revolution towards a new automation eco-system

The market is radically changing the interaction between man and machine in industrial process contexts. In recent years, robotics has made great strides with solutions increasingly equipped with artificial intelligence. Robots are complex machines that perform activities, faithfully reproducing human actions and behaviors, both physically and decision-making.

The fields of application of robotics are multiple and diversified, ranging from applications in environments characterized by heavy conditions, such as those in the nuclear, military, space and submarine sectors, to the medical and biomedical, domestic and industrial sectors. The automation of the intelligent factory is one of the first reasons to push many industrial districts to return to production in Europe. This is one of the first concrete results of the digital industry.

The combination and convergence of robotics, sensors, cloud computing,

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and artificial intelligence algorithms are opening up a **new automation ecosystem** with different business model opportunities. The coming years will see strong growth in robotics services, especially cloud-based services. According to a **GlobalData survey**, the global robotics market is set to triple in the next six years, rising from \$ 98 billion in 2018 to **over \$ 275 billion in 2025**. The report claims that the robotics industry will grow to a compound annual growth rate (CAGR) of 16% between 2018 and 2025, with an annual growth peak of 17% in 2022.

### “25% OF LARGE COMPANIES USE INDUSTRIAL ROBOTS,,

Statistics certify that Italy is at the forefront of European countries in the process of industrial automation. Driving the robotics revolution in Europe, are large companies, that is those with 250 or more employees: 25% of these use industrial robots for the manufacturing sector.

OCTOBER 2019



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### ASSOCIATIONS



#### AREI - SOUTH AFRICA

Association of Representatives for Electronics Industry

#### ASPEC - RUSSIA

Association of Suppliers of Electronic Components

#### ASSODEL - ITALY

Associazione Nazionale Fornitori Elettronica

#### CEDA - CHINA

China Electronics Distributor Alliance

#### ECAANZ - AUSTRALIA

Electronic Components Association Australia and New Zealand

#### ECIA - UNITED STATES

Electronic Components Industry Association

#### ECSN - UNITED KINGDOM

Electronic Components Supply Network

#### ELCINA - INDIA

Electronic Industries Association of India

#### FBDI - GERMANY

Fachverband der Bauelemente Distribution

#### FEDELEC - TUNISIA

Tunisian Federation of Electric and Electronic Industries

#### SE - SWEDEN

Svensk Elektronik Trade Associations

#### SPDEI - FRANCE

Syndicat Professionnel de la Distribution en Electronique Industrielle

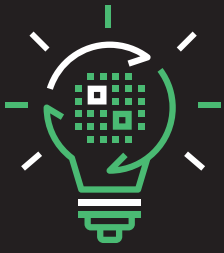
IDEA BULLETIN

PUBLISHER:  
Laura Baronchelli

International Promotion by:  
CONSORZIO ELINT / PHOT

PUBLISHED BY: Tecnoimprese Scarl  
Via C. Flaminio, 19 - 20134 Milan - Italy

PRINTED BY: Servizi Tipografici Carlo Colombo - Rome



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Amazon's Robots

**ABB** is investing in this market with a new robotics manufacturing and research facility in China that represents the largest market in the world in this sector. The factory is due to open in 2021 and represents a total investment of USD 150 million. ABB's robotics solutions serve a large customer base in Asia, supporting automotive manufacturers, particularly in electric mobility, as well as many other manufacturers of electronics, food and beverage, pharmaceuticals, logistics automation and the industrial sector in general. ABB expects global robot sales to grow to around \$ 130 billion in 2025.

## “ROBOTICS SOLUTIONS ARE NOT NEW IN INDUSTRIAL ENVIRONMENTS,,

Production in the highly automated factory will be based on automation cells rather than on a fixed assembly line, which will allow robots to move from one station to another to ensure greater customization and greater flexibility than traditional linear production systems. Robots are certainly not new in industrial environments, but their use in logistics to find goods and transport them to warehouses has increased substantially. Amazon's extensive use of robots is a remarkable example.

The robots used in the industrial field are also used for

measurement and testing operations on pieces produced to check their conformity and identify any geometric or dimensional defects and imperfections related to the manufacturing process.

## “AI PROGRAMMERS AND ROBOTIC ENGINEERS ARE TWO NEW PROFESSIONAL PROFILES,,

Robot-assisted surgery allows doctors to perform numerous types of complex procedures with greater precision, flexibility, and control than is possible with conventional surgical techniques. The hospital robot market is estimated at over 4 billion euros.

From a professional point of view, one of the jobs of the future and industry 4.0 is the **Robot Engineer** or **Robots Engineer** who deals with the design, implementation, and testing of robotic machines. It is not a completely new profession, but it is undoubtedly the current boom that this type of professional, multidisciplinary and certainly always animated by great passion and inventiveness, is living and will have more request in the coming years. AI programmers and Robotic Engineers are two new professional profiles that will be among the most popular shortly.

# Weaponizing Trade Impacts the Electronics Industry...

The electronic components supply network is a complex inter-dependant web of organisations all of which are regulated by the international and/or local government legislation applicable in each country in which they operate, regardless of the location of their administrative headquarters. Thus far European-based organisations in the electronic equipment market have experienced little disruption as a result of the current US / China Trade War but another problem is looming on the horizon that may prove significantly more disruptive across international markets... In this article Adam Fletcher Chairman of the International Distribution of Electronics Association provides an insight into the escalating technology trade spat between Japan and South Korea, that threatens to effectively 'weaponize' global trade...

ADAM FLETCHER, ECSN



The Japanese surrender at the end of WW2 ended the country's extended period of colonial rule in the Korean peninsula and drew a line under the atrocities - including slave labour and forced prostitution - that the colonists routinely perpetrated against the indigenous population. Diplomatic relations between Japan and South Korea were not re-established until 1965 when an uneasy accord was reached between the two countries and financial compensation agreed. It's perhaps understandable that despite the accord and the intervening half century diplomatic relations between the two nations remain somewhat fraught.

In 2018 **Nippon Steel**, a South Korean subsidiary of a large Japan-headquartered organisation, lost a case in the South Korean Supreme Court and was ordered to directly compensate a number of South Korean survivors of Japan's former colonial rule. It also moved to seize Nippon Steel shares in order to ensure a settlement.

This was not the first time the South Korean Supreme Court had taken such an action: earlier in 2018 a similar ruling was handed down to Mitsubishi Heavy Industries and currently many smaller claims for direct compensation are being heard in lower courts against

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less notable Japanese companies operating in South Korea. Combined, these compensation claims are estimated to exceed US\$175M.

The Japanese government headed by Prime Minister **Shino Abe** appears unrepentant about the country's past activities, prompting an increase in tension between the governments and populace of Japan and South Korea.

The governments of the two countries seem to be playing to populist sentiment within their electorate rather than actively seeking a constructive solution, apparently prompting the South Korean people to unite in boycotting Japanese imports and even take to the streets in anti-Japanese protests.

## JAPANESE ECONOMIC MEASURES...

The Japanese Government is arguing that a full and final settlement was made to South Korea in 1965 and has accordingly demanded an end to the class actions in the country. It has also threatened retaliation if South Korean courts continue to seize the assets of Japanese organisations.

Following intimations that it may take economic measures against its neighbour, the Japanese government chose the 4<sup>th</sup> July '19 to announce a tightening of the rules it applies to the export of three chemicals essential for the manufacture of semiconductors and display technologies - Fluorinated Polyimide, EUV Photoresists and Hydrogen Fluoride Gas, citing reasons of "national security".

Without these specialty chemicals companies such as Samsung, SK Hynix, LG etc., will have to cease production in South Korea, causing huge economic damage to them and the local economy whilst threatening massive supply problems for the entire electronic components supply network. Unsurprisingly, Japan's action has drawn many unfavourable comparisons with the current US / China trade war.

## FURTHER ESCALATION...

Japan-based chemical manufacturers and distributors are the dominant suppliers to the global technology market and in particular, to South Korean technology manufacturers. In order to sell these products to South Korea these companies will now have to apply to their government for an export licence and in the current climate there is no guarantee that a licence will be granted.

It is thought that large South Korean users of essential speciality chemicals currently only hold in-house inventory equivalent to between one and two month's demand.

The US administration has declared itself reluctant to get involved in the current stand-off but given the degree of trade that passes between the three countries it must be working hard behind the scenes to find a solution that "saves face" for



both South Korea and Japan. In the meantime the Japanese government has removed South Korea from its "White List" of 27 trusted export countries, effective on 28<sup>th</sup> August '19. In a tit-for-tat response the South Korean government announced on 12<sup>th</sup> August that it is removing Japan from its list of trusted trading partners.

These moves will foist a new and demanding approval process on organisations importing and exporting a wide range of goods in both countries, but in an unprecedented move the Japanese Trade Ministry has approved an export order for EUV Photoresists for a South Korean-based manufacturer. Sadly, no announcement has been made concerning exports of the two remaining specialty chemicals, but it is a step in the right direction.

## FINAL THOUGHTS...

Whilst the Japanese Government may be aggrieved by the recent actions of the South Korean judicial system its response will probably come to be viewed as a mistake as it can only undermine the trust that Japanese companies have painstakingly established with their many trading partners and customers since the end of WW2.

'Weaponizing' trade of just a few chemicals has the potential to destabilise the economy of South Korea and subsequently impact growth throughout the global electronics industry. Hopefully this dispute will act as a 'wake-up call' for all governments and they will come to realise that 'Weaponizing trade' in a global market for domestic and international gain can have severe economic and social consequences well beyond their borders.

In the meantime, we must all hope that wider international diplomatic efforts will quickly resolve the current situation which I believe has the potential to make the current issues around Brexit seem like a 'walk in the park'... Until better council prevails my best advice is to continue to communicate your organisation's real needs and demand forecasts with your partners both up and down your organisations supply network.

# Gartner: The 2019 Top 10 Strategic Technology Trends

Every year, the market analyst Gartner publishes the Top 10 Strategic Technology trends highlighting all those trends that will impact and transform industries through 2023. Here are the evidences of 2019 report.

## TREND N. 2: AUGMENTED ANALYTICS

There are increasing amounts of data to collect, analyze and group and from which to draw conclusions. Augmented analytics represents a way to explore more hypotheses using automated algorithms through data and analytics capabilities.

## TREND N. 5: EMPOWERED EDGE

Edge computing refers to an information processing and data collection and delivery which are placed closer to the sources of the information/data. According to Gartner, intelligence will move toward the edge in a variety of endpoint devices, from industrial devices to screens to smartphones to automobile power generators.

## TREND N. 8: SMART SPACES

A smart space is a physical or digital environment in which people, thanks to technology, interact in open, connected, coordinated and intelligent ecosystems.

## TREND N. 9: DIGITAL ETHICS AND PRIVACY

## TREND N. 3: AI-DRIVEN DEVELOPMENT

AI-driven development means tools, technologies and best practices for embedding AI into a variety of different applications.



## TREND N. 7: BLOCKCHAIN

Blockchain allows companies to trace a transaction and work with untrusted parties without the need for a centralized party (i.e., a bank). This can potentially lower costs, reduce transaction settlement times and improve cash flow.

## TREND N. 10: QUANTUM COMPUTING

## TREND N. 1: AUTONOMOUS THINGS

When we speak of autonomous things we speak about **AI - artificial intelligence**. A series of technologies which are needed to interact in a human-like behaviour with the surrounding environment. And which usually part from a smart object.

There are now 5 important applications:

1. Robotics;
2. Vehicles;
3. Drones;
4. Appliances;
5. Agents.

## TREND N. 4: DIGITAL TWINS

A digital twin is a digital representation that mirrors a real-life object, process or system. The focus today is on digital twins in the IoT which could improve enterprise decision making by providing information on maintenance and reliability, insight into how a product could perform more effectively, data about new products and increased efficiency.

## TREND N. 6: IMMERSIVE TECHNOLOGIES

**Augmented reality (AR), mixed reality (MR) and virtual reality (VR)** which change user experience creating immersive situations. By 2022, 70% of enterprises will be experimenting immersive technologies to better address and involve their clients.



# The electric car: the evolution of the species

FRANCO MUSIARI, ASSODEL



The electric vehicles that are starting to be the means of transport of our near future are developed on three technological lines: power electronics, engines and batteries ...

In 1881, **William Ayrton** and **John Perry** built the first electric car that could proceed at a speed of 14 km per hour for about 40 km. Not bad for a 140-year-old vehicle! Even at that time, electric vehicles seemed to be the best solution for the future of transportation... but for several reasons (high costs and the fact that electricity was not available everywhere) the project failed. In the period between 1930 and 1935 the short history of electric cars experimentation ended and the internal combustion engine became the ruler of the transportation market.

## THE 1ST ELECTRIC CAR (1881)

a reconstruction in the autovision museum of Altusheim (D)



### Hybrid Electric Vehicles

<b>Mild Hybrid</b>	Includes a 12V battery, for compatibility with existing electrical systems, and a 48V one for starter / generator, fuel pump, water and other features.
<b>Full Hybrid (HEV)</b>	Combination of battery and combustion engine
<b>Plug-in Hybrid (PHEV)</b>	Allows charging from an external source

### Electric Vehicle

<b>Pure Electric (EV) or Battery EV (BEV)</b>	Fully electric operation. HEV, PHEV and EV require a 400 / 600V battery or more for traction
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## TOWARDS ELECTRIC VEHICLES... BY STEPS

### 1. Start-Stop system

The electrification of vehicles has passed through a series of steps. The first step in this direction was the implementation of an engine start / stop (combustion) function. The engine stopped when the vehicle stopped and automatically restarted when the brake pedal was released.

### 2. Mild Hybrid

The next step was "mild hybrid" or "light hybrid" vehicles. These systems were characterized above all by the 48 Volt electrical network, which optimized the stop / start function, with an engine that recovered energy during braking (regenerative braking). In recent years, there has been a proliferation of models of this type: for example, Renault Scenic and Grand Scenic Hybrid Assist, in which the 1.5 dCi diesel engine with 110 bhp is flanked by an electric one to further reduce fuel consumption and emissions. But also the Audi A4 and A5, A7 Sportback and A8 with mild hybrid mHEV system (12V or 24V) both on the 2.0 TFSI engine and on the 3.0 TDI.

A technology like the mild hybrid is now coming back on the market for two reasons: it allows a reduction of emissions and a consumption saving without large additional costs.

### 3. Hybrid Electric Vehicles (HEV)

The Full Hybrid cars represent the next step in the classification. They are the only ones able to travel only in the electric mode. Normally at low speed the car is silently powered only by the electric engine, which means with no emissions and no fuel consumption.

The combustion engine takes over at a higher speed and, if necessary, the electric engine provides additional power during acceleration. The Hybrid system is able to intelligently select the most suitable power source and capture more energy from braking to recharge the battery. The combustion engine can also help recharge batteries.

### 4. Pure Electric (EV) or Battery EV (BEV)

Finally comes the totally electric car where the energy for propulsion is provided only by a battery of adequate power and capacity.

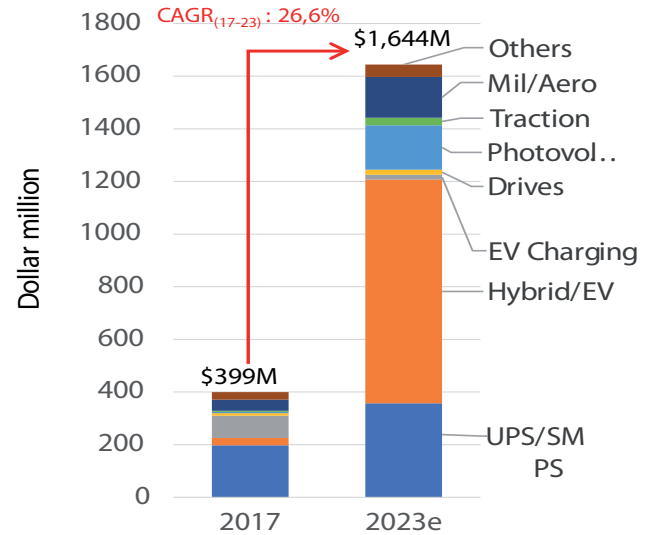
## POWER ELECTRONICS FOR ELECTRIC VEHICLES

Whether they are hybrid or totally electric, cars need at least three types of energy conversion units:

- **DC-DC converters**, typically from 48 to 12 volts, to supply low voltage electronics. They can be bi-directional to allow energy transfer from 12 to 48V.
- **DC-AC inverters** to drive the electric motor, typically three-phase, which supplies power to the wheels.
- **AC-DC converters** for recharging vehicle batteries both during braking energy recovery and from standard residential workstations or high-power charging stations (for fast recharging).

**SiC POWER SEMI BY APPLICATION**

Chart 2

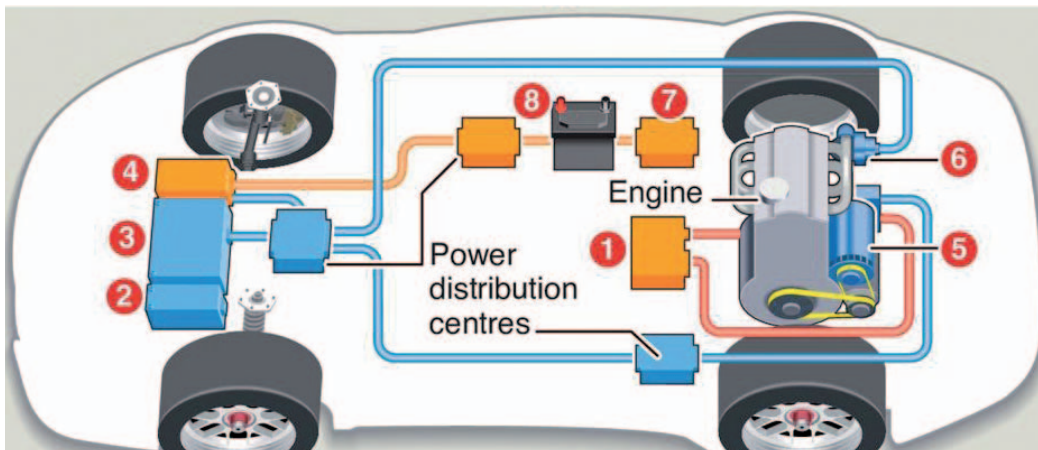


**“IN 2023, SiC TECHNOLOGY POWER DEVICES WILL REACH A VALUE OF 1,644 M DOLLARS,,**

In the second and in the third case the electronics involved is of high power. For example, the inverters that drive the engines of the Tesla Model SP must be able to handle a peak power of 375 kwatts and the turbo charging can require powers of 200 kW (Tesla’s V2 turbocharger) to reach even 350 kW for ultra-charging rapid.

Although HEV / EV also have DC distribution at 12 and 48

## The engine of electric vehicles



1. Controller - it controls the Start / Stop function
2. Battery control system
3. 48V Battery (lithium ion battery)
4. AC-DC converter
5. Electric engine - it starts the engine and charges the battery
6. dc-dc converter 48 -> 12V
7. electric turbine to power the engine
8. Battery 12V



volts to different functional units, the basic voltage to handle traction comes from a lithium ion battery pack that provides at least 400 V, and up to 800 V.

In order to obtain the maximum of autonomy from the batteries it is necessary that the entire conversion chain reaches a maximum of efficiency.

The technology to realize power devices - diodes and MOSFETs - with the required efficiency has already been identified and is called silicon carbide, SiC.

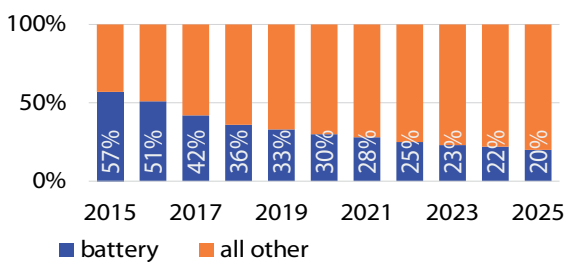
According to **IHS Markit**, SiC technology power devices will see an important growth between 2017 and 2023 with an average annual growth of 26.6%. The market share that will show the most interesting growth is that relating to hybrid and electric cars applications (Hybrid / EV). In 2023, the total market of these power devices will reach a value of 1,644 million dollars.

## Batteries

According to **Bloomberg New Energy Finance (NEF)**, batteries will see an important reduction of their prices (expressed in dollars per kWh).

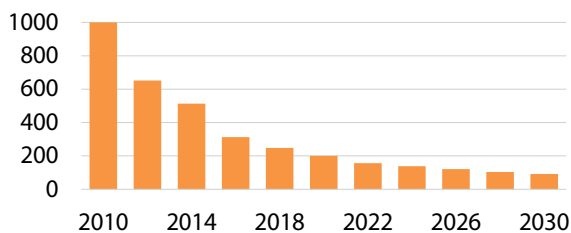
Also, by 2025 the cost of the battery will represent only the 20% of the total cost of a electric car instead of the actual 36%. The two trends will obviously go hand in hand...

**BATTERY COST AS % OF TOTAL CAR COST** Chart 3



Source: Bloomberg NEF

**BATTERY COST - \$/kWh - PROJECTION** Chart 4



Source: Bloomberg NEF

## In 2040 we will have 55 million fully autonomous vehicles

In 2040 we will have 55 million fully autonomous vehicles **BMW** and **Daimler** have announced their union to develop autonomous and connected mobility technologies. According to **Idate DigiWorld**, by 2040 55 million fully autonomous vehicles will be sold (level 5)!



In a context in which the automotive market is changing, with the alliance between **Renault-Nissan** and **Waymo** and the acquisition of **Drive.ai** by Apple, the company Idate DigiWorld, "think tank" of the European digital economy, there unveils an analysis of the players and sales forecasts for the next 20 years.

In his latest study dedicated to autonomous vehicles, Idate DigiWorld highlights three crucial aspects:

### 1. The Asian market will drive sales

The Asia-Pacific region will remain in first place until 2040 in the sale of autonomous vehicles. North American carmakers are in second place but should grow less rapidly than their Asian counterparts. However, they remain leaders in testing initiatives and have already tested autonomous vehicles in 35 cities. The European ecosystem follows the ranking with 33 cities tested.

### 2. New operators in the market, such as Baidu

New operators will enter the market, changing the business model of the sector by creating a new service economy. Among these new players, we find some Internet giants like Google, Apple and Baidu. Among these, Baidu has invested heavily in artificial intelligence and is in a position of advantage. The Chinese leader has launched a taxi-robot program in the city of Changsha, launching a prototype 14-seat minibus. The goal is to reach a fleet of 100 vehicles by the end of 2019.

### 3. We will have to wait a little longer to see a real market

Fully autonomous vehicles, namely levels 4 and 5, will not arrive on the market before 2025-2030. Today Audi is the only manufacturer to offer autonomous mid-level vehicles (level 3) for individuals, with the Audi A8 vehicle.

The ethical and regulatory issues related to the authorization of mobility are still too many to be overcome before the production can really start.

Not to mention the fact that the extremely high costs of these vehicles and the concerns that this type of innovation creates for consumers remain important obstacles.

# Social Selling: are you using LinkedIn?

In a world which is more and more connected through web and social media, what **LinkedIn** can do to improve your business in the electronics industry?

Is it really useful for developing the business in your market, in your areas, for your type of customers?

**The concept behind Social Selling is simple: how to use LinkedIn to sell in a B2B market.**

LinkedIn Sales Navigator is really the most useful tool to sell more in B2B.

But what is social selling? It is a sales method where social media (especially LinkedIn) are used to add more people to the sales pipeline and interact directly with prospects.

It can revolutionize your sales approach, enable better lead generation, build real relationships and partially eliminate cold calling. There are strong numbers that show what social selling can do for your sales team. According to a research by CSO Insights, 70% of B2B professionals reported using social media for lead development, 65% used it for account research, 60% used it for call preparation and 59% used it for contact and stakeholder research. These numbers demonstrate how salespeople using social media are able to build relationships with their prospects, which leads to new business opportunities. As a matter of fact, IDC found out that 75% of B2B buyers and 84% of C-level in industry use social media to make their purchasing decisions.

## HOW TO BUILD YOUR PRESENCE ON LINKEDIN

LinkedIn already has a tool in place to help you become a more effective in selling: the LinkedIn Social Selling Index (SSI) [linkedin.com/sales/ssi](https://www.linkedin.com/sales/ssi).



The SSI is based on the following aspects:

- **Personal brand:** your profile has to be filled in with detailed information. Establishing your personal brand also includes posting content and interacting with others with likes and comments.
- **Find the right people:** connections which are in line with your profile and with the target you want to reach professionally.
- **Engage with insights:** the content that you share and engage with has to be relevant and with a added value for your readers.
- **Build relationships:** building connecting with decision makers is your main focus.

## FBDi offers templates for quality assurance agreement Free and readily accessible QA-templates available for download

by FBDi



FBDi is underlining its position as solution-oriented association with neutral templates of a quality assurance agreement.

The version *“without liability rules and terms&conditions”* is an addition to existing framework agreements, and ready for cost-free download in German and English language at <https://www.fbd.de/agreement-on-quality-assurance-without-liability-and-gtc-regulation.html>

In addition FBDi is preparing a comprehensive version with a section *“reference terms&conditions ZVEI and wordings*

*regarding liability”*. This version aims at business relations that have not been negotiated between distributor and customer. Upon completion and legal review this version will also be available for download in August.

Both versions were prepared with the greatest possible care by the Competence Team Quality of FBDi. More far-reaching EU-regulations drive the request of members for applicable basic rules to be able to handle the daily business.

With these neutral QA assurance templates FBDi takes account of the specific needs of distribution as they are designed for the use by customers and non-organized distributors and represent a more secure and reliable cooperation.