

July 2023

PCC

CHEM NEWS

Newsletter of the PCC Rokita Capital Group and affiliated companies

Jubilee Bal
2023

**The PCC Group's
Open Day**
has come and gone!



PCC CHEM NEWS

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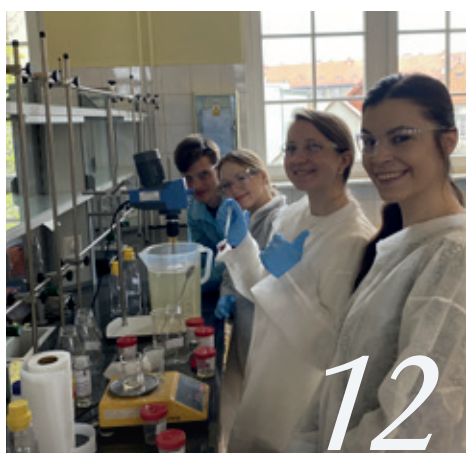
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Jubilee Ball 2023

The Jubilee Ball of 2023 was attended by 78 employees celebrating their 25th, 30th, 35th, 40th, 45th, 50th and.... 55th year of uninterrupted employment in PCC!

Congratulations to all!

Maciej Trubisz
Editorial Team











2320
exhibitors

10
exhibition halls

75,000
visitors

120
countries from
around the world

127,000
square meters of
exhibition space

PCC Intermodal *at the Transport Logistic fair in Munich*

This year, one of the largest and most important fairs of the transport and logistics industry in Europe took place on 9th-12th May.

The event was attended by nearly 75,000 visitors from over 120 countries around the world. You could find companies from all over Europe, there were also business representatives from India, China, Canada... We just had to be there! Our 12-person team presented the activities of PCC Intermodal SA at a joint stand of our partners from the Berlin and Brandenburg region, where one of the reloading terminals managed

by us as part of a regular network of intermodal connections – Frankfurt Oder – is located. During the event, we held over 1,500 meetings and drank almost 300 litres of coffee

PCC Intermodal





The PCC Group's Open Day has come and gone!

On Friday, 14th April 2023 we were visited by over 130 students from Wrocław University of Science and Technology, the University of Wrocław and Silesian University of Technology.

How was it?

Intense! Six groups of chemists visited both production facilities and analytical and R&D laboratories. An additional group of technicians had the opportunity to check out, among other things, what the job of the Plant Dispatcher is all about or what a hydrogen gas boiler looks like.

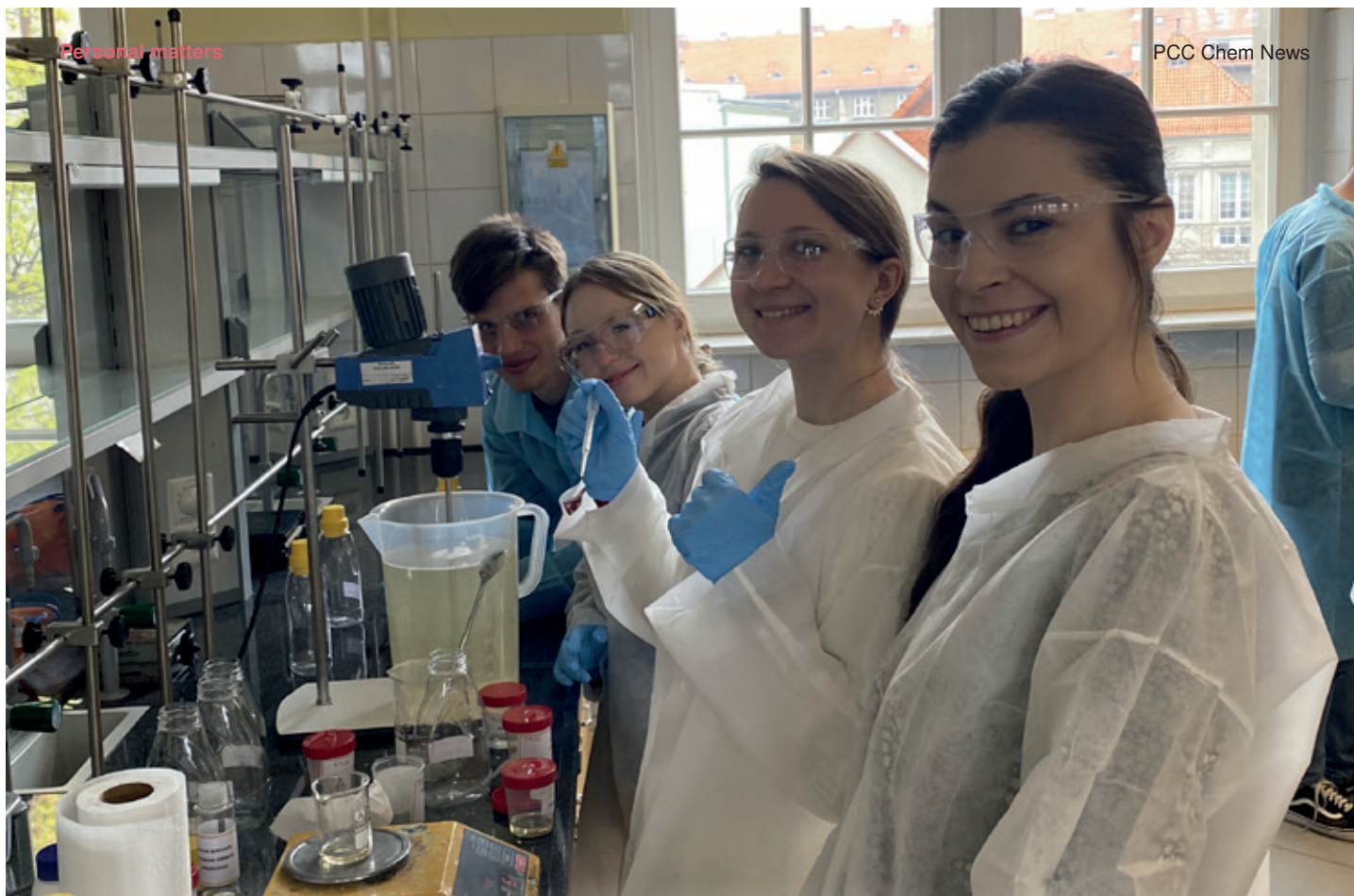


During the official part, we took the students out on a journey through our company's various areas of development and invited them to a game of Chemical Feud. The students showed off their extensive knowledge, as well as cracked some chemical jokes.

The feedback from the students confirms to us just how important it is to be able to take a look at what the industry looks like in practice. Getting acquainted with all this while still studying allows you to make a more conscious decision as to your future career. And what the students saw in our company did make quite an impression (thank you for this positive feedback and, more than anything, your presence).

Karolina Ławecka
HR Specialist
PCC Group





BEST *Career Week 2023* with the PCC Group

BEST Wrocław is one of the most dynamic student organisations at Wrocław University of Science and Technology (WUST). They have extensive experience in organising local, national and international events. BEST's members are young, ambitious students who put their skills to good use to develop projects connecting academics and companies.

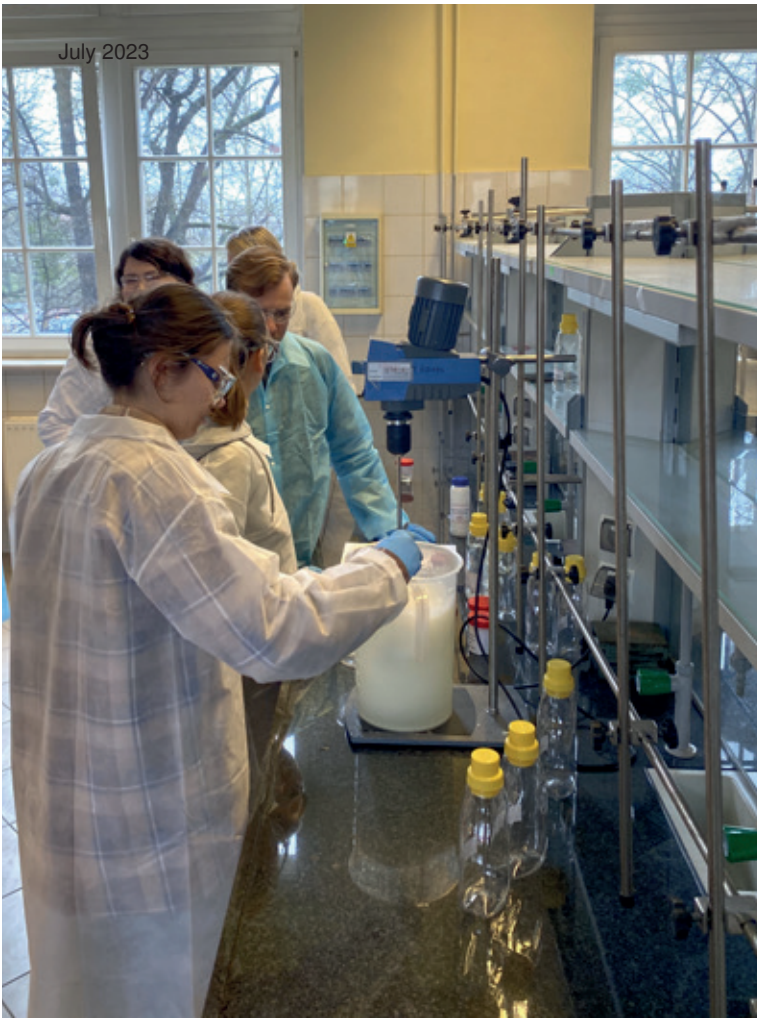
The BEST Career Week project has been carried out continuously for nine years. Within this time, they managed to establish cooperation with quite a number of companies and reach hundreds of Wrocław's students. For several years now, the PCC Group has been one of the employers actively participating in the event.

The 18th of April saw students of Wrocław University of Science and Technology's Faculty of Chemistry participate in a workshop entitled "Learn about the cosmetic chemistry – create your own shower gel!".

According to BEST Career Week organisers, the PCC workshop was very popular among students and places went

like hot cakes. Twenty students got the chance to learn a bit about programmes dedicated to chemical faculty students and graduates: the scholarship, internship and apprenticeship programmes, and find out more about career development opportunities in the PCC Group.

With clear instructions and support from PCC CP Kosmet's R&D special-



ists, students were able to create their own, personalised shower gels.

After the workshop, we've received some hugely positive feedback on the event. The participants filled out a survey for us, where they indicated what they enjoyed the most:

"Talking to company representatives, presentation of the offer for students, the workshop dedicated to creating a gel,"

"Everything, the whole creation process and the ability to choose the composition you want,"

"Freedom of action, independence during the activities,"

"The possibility to compose your own mix, not according to a strict recipe, but with freedom of choice, e.g. when it comes to fragrances,"

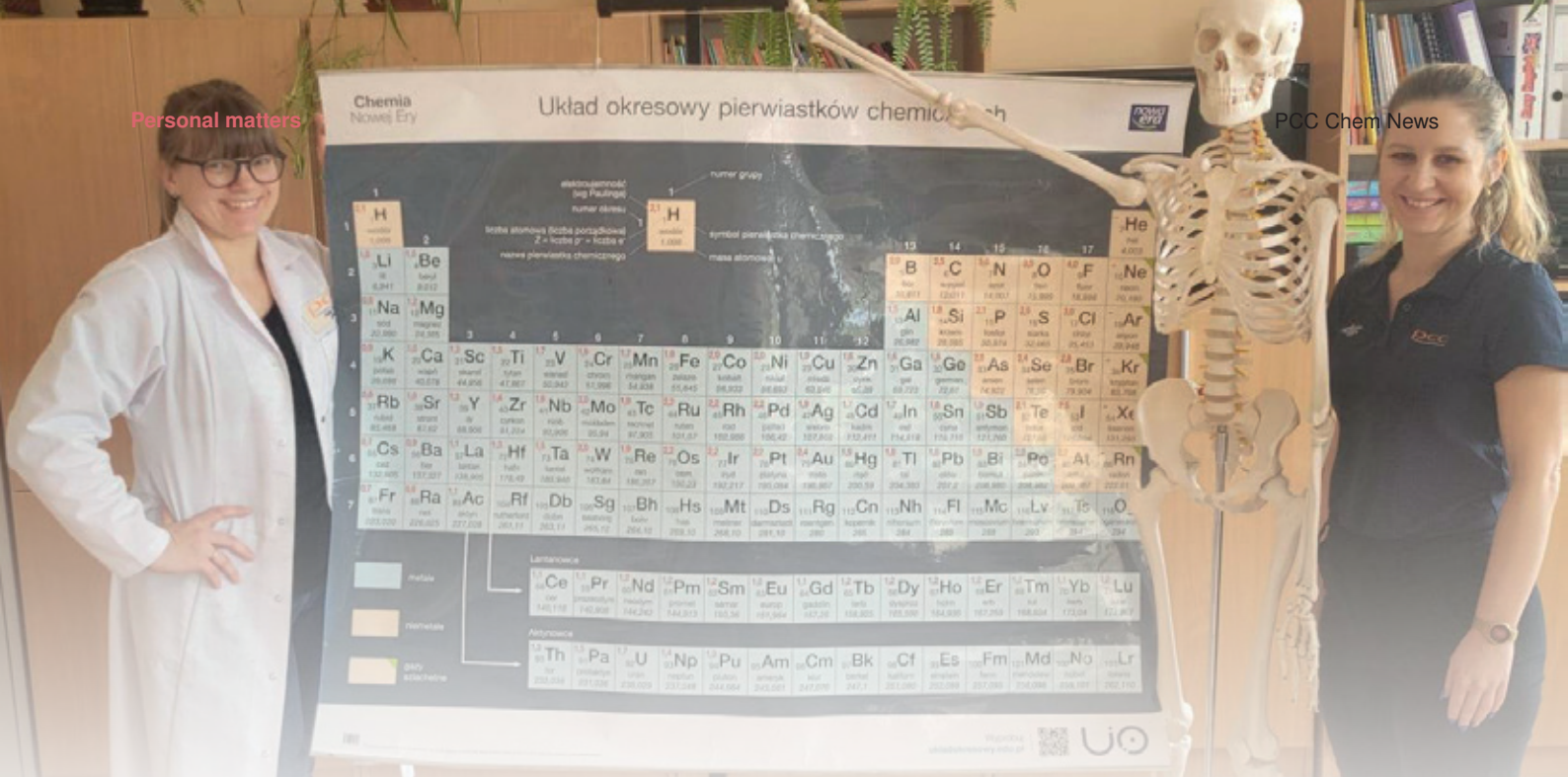
"Preparing a shower gel by myself was wonderful! Great atmosphere,"

"Everything, great presentation of the company and an interesting workshop."

The students really enjoyed the independence in performing the task, the opportunity to talk to other participants and PCC employees during the coffee break and the "for the student" presentation of the company. The students praised the independence in choosing fragrances, the manner of conducting the workshop and its pleasant atmosphere.

Participants also declared their willingness to participate in future workshops, while the organisers proposed to hold two workshops next time, so that more students could participate. The next BEST Career Week is coming in a year's time, so we have some time to prepare for another, equally interesting workshop!

Izabela Dreja-Dulewska
HR Business Partner
PCC Group



Discover the world of a chemist technician with PCC Group!

The intense time of promoting the Chemist Technician programme that we're planning to launch in September 2023 at the Vocational School Complex in Brzeg Dolny is finally behind us! With our chemistry workshops, we wanted to present to students the fascinating world of chemistry as well as show them what development opportunities would await them after joining our programme :)

Our employees prepared for the students unusual experiences and experiments that aroused their curiosity and interest. Students had the opportunity to independently conduct chemical experiments, observe reactions and discover new phenomena.

At the workshops, we presented how chemistry impacts our everyday lives and the development of technology and innovation as well as what career opportunities the Chemist Technician programme offers.

We're over the moon that our workshops were so enthusiastically received by students!

We encourage all students to try and discover the fascinating world of chemistry and join our Chemist Technician programme launched under the auspices of the PCC Group!



Karolina Ławecka
HR Specialist
PCC Group

Children's Day with PCC!

Over 230 children took part in the performances staged for the children of our employees on 27th May on the occasion of Children's Day.

That Saturday saw two shows for the children – whose message focused on the topics of healthy eating and encouraging children to read books – take place at the cinema hall of the Cultural Centre in Brzeg Dolny.

On their way out of the cinema hall, all the children received gift bags from the company.

Maciej Trubisz
Editorial Team



Tomasz Kozłowicz

comes 9th in the world in Wings For Life!

Tomasz can usually be seen walking slowly towards CTP-1. Tall, happy and smiling, he walks along our G road. But now, as it turns out, last May Tomasz achieved quite a success! He might be ambling down the road to work, but he can run fast – very fast! Let's meet an extraordinary man!

Maciej Trubisz: 9th place in the world is a great achievement! **Out of over 206,000 people, you came in 9th!** How does it feel, and were you expecting such a result?

Tomasz Kozłowicz: To be honest – and this may surprise some people – I didn't really prepare in any way for this run. My overriding goal for the first part of the season was to run in the Bratislava Marathon in early April. In the Slovakian capital I ended up just missing the podium, two seconds shy of coming in 3rd. I also managed to beat my personal best at this distance, and it was mainly the classic 42 km that my entire training cycle was focused on... I signed up for Wings back in 2022, without any specific plan for this run. However, taking ad-

vantage of my good shape, I decided to extend the starting season by a month, and I think it was a bull's-eye.

As for the race itself, well... I didn't get that tired, as I remember many other competitions where, having crossed the finish line, I either couldn't catch my breath or just lay there, unable to stand up. I felt really relaxed, and at times it felt like just a typical Sunday run. But after all, it was, of course, a competition, and adrenaline did its job, but in retrospect, I'm pretty convinced that the greatest role in this state of affairs was played by very good performance preparation for the royal distance.

I ran most of the route with the conviction that I could be end up somewhere around the podium in Poznań, but I had absolutely no idea how this would translate into the global classification. I learned about the final result only after returning to the runners park, where we were transported by buses provided by the organiser. And imagine my surprise when I learned that this run of a little less than 61 km allowed me to be in the top ten, but in the world ranking... Shock and disbelief!!!

M.T.: Do you feel any dissatisfaction with this result? When it comes to Poles ranking, you took 4th place, which shows how strong the Polish representation at the event was.

T.K.: Wings For Life seems to have some special meaning in Poland. A lay person may not know who the Polish marathon Champion is or where the national 10 km championship is held, but if they haven't heard of THIS run, where you're chased by the finish line

and where Adam Malysz himself is sitting behind the steering wheel of the chase car, then something's wrong :) It should be emphasised that Poles often win flagship runs outside of the country and are always high up there in the world ranking. Poznań itself, which from the very beginning has been the unwritten capital of Wings in Poland, attracts many good runners who want to take part in this specific run.

As for my result, despite the 4th place, I feel that I've realised my plan to a max. A few days before the event, I analysed the situation, and I knew that, with my capabilities, 60 km is a doable distance. That was the only thing on my mind for the entire race. Not the place, but the distance I have to cover to reach my individual goal. In the end, "the Eagle from Wisła" caught up with me at exactly 60 km 760 m, but this is not my last word when it comes to Wings.

M.T.: Wings For Life is an unusual race. Unusual because, above all, it's not you going after the finish line, but the finish line going after you. Does it change anything to you at all?

T.K.: Honestly, it does, and a lot. So far, I had competed in events where I'd always known before the start how many kilometres I would have had to cover to reach the finish line, and in what time I wanted to do it. This is important in terms of correct distribution of effort, estimating the pace for the run and mental preparation for what's to come. Here, in theory, there is no such thing... You don't know in advance what distance you will run and where the chase car will catch up with you, marking the finish line.



But that's exactly why the Wings For Life run is so special and memorable. Cheering fans are scattered practically all along the route. No matter if it's the 2nd or the 60th kilometre. When running out of the city, one would expect that from there on all that's left is running in solitude, passing one village after another. But no. The residents there live for this specific celebration of running just as us athletes. It gives you wings.

M.T.: Did you get a chance to meet Adam Malysz at the finish line? How does it feel when, at almost 61 km, the finish line – with our Olympian medallist and winner of numerous sports events – reaches you?

T.K.: Ha ha, to be honest, when the chase car catches up with you, some kind of innate instinct kicks in, and despite being exhausted, you still want to grab as much as you can, finishing with a sprint :) It's hard to focus your eyes on anything then and focus on one specific person.

Our Champion, however, always warns of his approach with the horn, so you can prepare for this encounter. Adam was present not only at the start of the race and during it, but also at the very end, when he personally escorted the

winner of this year's competition to the runners park.

M.T.: Did you have your own personal message for this run?

T.K.: First of all, it should be emphasised that the main idea behind the Wings For Life run is to raise funds for spinal cord injury research and treatment. So the whole thing, all the effort of over 200,000 participants is a charitable message. All proceeds from the event go to this worthy cause.

As far as I'm concerned, maybe I didn't run for anyone in particular, but I did run with a specific message for all runners. Both beginners and those with longer running experience... To enjoy the fact that we can practice this beautiful sport... To enjoy all physical activity... Because there are people who can't.

M.T.: How much do you train per week?

T.K.: I am an amateur runner, but with a rather ambitious approach to sport. This, of course, requires many sacrifices and hours spent training, but it's important to remember that the boundaries between personal life, work and sport should not be blurred. You have to work out a balance that works for you. When



running as an amateur, you have to reconcile all aspects of life, and sport is only one of its components.

To answer your question, I usually train six times a week, leaving one day out for body regeneration. But if I am already in advanced training for a specific event, then seven days in a row, doing the given training. Mainly, I mean strictly running



training, but for some time now I've also been trying to include a bike training in the week. It doesn't always work out, but I try :)

M.T.: When did you get into running, and why running and not any other sport?

T.K.: I've always been involved with sports to some extent. First, it was football, obviously. The bike was also no stranger to me in my childhood years either. But my craze for running came about eight years ago. I knew that, while in college, I let myself go a bit, to put it mildly. And then, one day, I decided to take up jogging. I started going out for few-kilometre jogs, first, second, third time, and I think that's how it stayed with me :) I simply signed up for my first competition. It was the Flag Run in Wołów. I took off, finished, and was completely head over heels. The whole

running atmosphere drew me in so much that now I can't even imagine spending my spare time any other way :) And why running? Well, it's probably the simplest type of physical activity. You put on your shoes and run... That's it. There's just you and the space around you. And the distance to run, of course :)

M.T.: What advice would you give to those who haven't started running yet?

T.K.: As I mentioned before... Running is simple, easy and enjoyable. On a purely amateur level, you don't need any super equipment, you don't need to have a group of people to train with. You just move from resolution to execution. In terms of any advice, I think the most important one is to enjoy and have fun with what you do. As long as running is fun for you, I assure you, you will do it :) And technically speaking, don't jump in

deep straight away. Not everyone has to run marathons or break 3 minutes per kilometre from the get-go... Start this adventure with running with an easy pace and short distances, so as not to get discouraged at the very beginning or get yourself an injury. Because, despite the sweat shed during training and all the fatigue at the finish line, the world of running is really full of beautiful moments. But most of all, you meet a lot of positively crazy people... Because life is really all about the people you surround yourself with.

Maciej Trubisz
Editorial Team



TOP 10

most interesting developments and discoveries in chemistry in 2022 - *part II*

Year by year, the world of chemistry changes for us, bringing about new discoveries that influence the development of science and modern technologies. In the previous issue of the Newsletter, I presented the first five of the ten most interesting things that happened in the field of chemistry in 2022. It's now time to present the other five pieces of news that have changed our future.



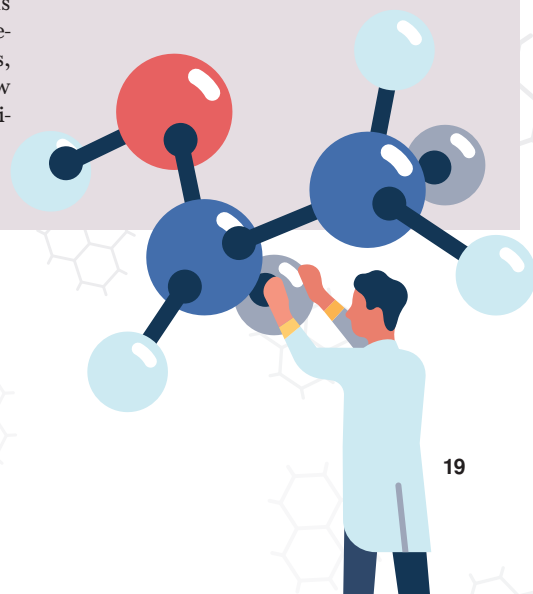
Polish Nobel Prize

(November 2022)

November 2022 saw the awards of the Foundation for Polish Science being given out for the 31st time. Often referred to as the "Polish Nobel Prize," the award is considered the most important scientific distinction in Poland. The award is presented to scientists who can boast a special discovery or scientific achievement that opens up new cognitive perspectives, pushes the boundaries of cognition, but also makes an outstanding contribution to the cultural and civilisational progress of our country and provides Poland with a significant place in taking up the most ambitious challenges of the modern world. This year's Award in the field of chemical and materials

sciences was awarded to, for example, Bartosz Grzybowski from the Institute of Organic Chemistry of the Polish Academy of Sciences in Warsaw and Ulsan National Institute of Science and Technology in Ulsan, Republic of Korea, "for the development and empirical verification of an algorithmic methodology for planning chemical synthesis." This discovery consisted in carrying out a computer-planned organic synthesis and using artificial intelligence to predict the course of chemical reactions, and, at the same time, discover new compounds that could be used as medicines.

Professor Grzybowski is one of the first scientists working in the field of organic chemistry to make use of the capabilities of existing tools and computational methods to predict not only real-life applicable, but also even better ways to synthesise difficult organic molecules^{1,2}.



¹ <https://www.fnp.org.pl/prof-bartosz-grzybowski-laureat-nagrody-fnp-2022/>

² <https://www.fnp.org.pl/znamy-laureatow-nagrod-fnp-2022/>



Elaliite and Elkinstantonite - new minerals

(November 2022)

In 2020, a 15.2 tonne meteorite called El Ali, also known as Nightfall, was found in Somalia. After two years of studying a 70-gram sample, scientists from the University of Alberta in Egmont discovered two minerals in it that had not been seen on Earth before.

The discovered minerals were named elkinstantonite (after NASA researcher Lindy Elkins-Tanton) and elaliite (in

honour of the meteorite and the town near which it had been found). The discovery was announced at the Space Exploration Symposium held on 21st November 2022 at the University of Alberta. It is worth mentioning that, although these two minerals had not been seen in their natural form anywhere on Earth, very similar ones were once created synthetically in laboratories in the 1980s. Of course, the discov-

ery isn't slowing the scientists down by any means as they continue to conduct further research into what applications these two minerals could have in our world in the future^{3,4}.



Research on thermonuclear fusion

(December 2022)

The end of 2022 brought about a breakthrough that is significant for not only the world of science, but also mankind. On 5th December, scientists at the Lawrence Livermore National Laboratory (LLNL) made a breakthrough in thermonuclear fusion research conducted at the National Ignition Facility (NIF). For the first time in history, fusion resulted in obtaining more energy than the amount that was used to start the reaction. The success was announced at a press conference of LLNL representatives, the head of the US nuclear safety agency and the secretary of the Department of Energy.

Nuclear fusion consists in combining light atomic nuclei into heavier ones, releasing large amounts of energy. The perfect fuel for this type of reaction could be hydrogen as our planet has it in abundance. However, electrostatic forces keep atomic nuclei apart, which

means that very specific conditions are needed to achieve fusion using hydrogen, namely heating them to a million degrees and squeezing them to a million atmospheres. It's worth mentioning here that this process looks different in stars, where it occurs thanks to quantum tunnelling.

Thermonuclear fusion has been attempted numerous times around the world, but so far all the attempts have resulted in the absorption of more energy than the amount produced. NIF has been working on this phenomenon since the 1950s, but it is technically difficult to perform. That is why the latest research results are such a huge breakthrough that opens up new possibilities for the world of science.

The breakthrough experiment consisted in delivering 2.05 megajoules of energy to a hydrogen capsule using the pulse

of huge NIF lasers. The fusion yielded 3.15 megajoules – an excess of 54% (over a million joules).

While a million joules could seem like a lot, it is the equivalent to a quarter of a kilowatt hour, which would be enough energy to boil water in a kettle a dozen or so times, and that's it. The scientific community has pointed out that, while the process itself took only 2.05 megajoules of energy, more than 322 megajoules of energy were used to power the 192 lasers needed – that is, practically a hundred times more energy than the fusion produced. This means that many more years of scientific and engineering work are needed to make thermonuclear fusion applicable somewhere on a larger scale. This latest achievement, however, gives hope for further breakthroughs in this area^{5,6}.

³ <https://www.ualberta.ca/folio/2022/11/new-minerals-discovered-in-massive-meteorite-may-reveal-clues-to-asteroid-formation.html>

⁴ <https://www.national-geographic.pl/artukul/w-tym-meteorycie-odnaleziono-dwa-minerale-ktorych-nigdy-nie-widziano-na-ziemi-221201050211>

⁵ <https://www.llnl.gov/news/national-ignition-facility-achieves-fusion-ignition>

⁶ <https://oko.press/przelom-w-badaniach-nad-fuzja-termojadrowa>



State-of-the-art solar cells

(December 2022)

Renewable energy sources are an inseparable element of the modern power industry. Much is said about the fact that they might be crucial in the fight against global warming and the climate crisis. That is why scientists do not cease to look for new technologies that will utilise RES-obtained energy in an even easier and better way.

For example, engineers from the Massachusetts Institute of Technology have developed innovative solar cells that can

turn any solid surface into a source of energy and are thinner than a human hair. These advanced cells are attached to a very strong, yet lightweight fabric, thanks to which they can be easily mounted virtually anywhere. The scientists emphasise that their invention could be used e.g. in emergencies, when there is no other source of energy in the area, or when travelling.

This ultra-thin cell was created with a 3D printer using semiconductor ink.

Compared to conventional panels, it is a hundred times lighter and it generates much more energy per kilogram. Due to environmental resistance issues, the panels are still in the test phase. Currently, the scientists' efforts are focused on creating ultra-light containers that could hold the cells⁸.



A super-strong material

(December 2022)

Scientists from the Oak Ridge National Laboratory and the Lawrence Berkeley National Laboratory (Berkeley Lab) conducted research on a new metal alloy through which they discovered that it shows a very high level of plasticity (it is very ductile and malleable) and unprecedented hardness, i.e. resistance to deformation. The alloy consists of chromium, cobalt, and nickel – CrCoNi.

The first tests on this alloy have already allowed the scientists to conclude that the ductility and strength of CrCoNi improve as the alloy is being cooled down, even to a temperature of about -196°C. In December 2022, the latest research results, confirming that this alloy can withstand even lower temperatures of

down to -253°C, where liquid helium is present, were published in the Science journal⁹. This phenomenon arouses a great deal of interest as for most other materials, the opposite occurs. For example, steel breaks much more easily at very low temperatures.

It is worth noting here that the CrCoNi alloy belongs to the group of high-entropy alloys – HEAs. Their unique feature is that they are a mixture of constituent elements in equal parts, whereas most of the currently used alloys show a predominance of one element and a much smaller amount of other elements. This makes HEAs stand out, and their even composition has a significant impact on the properties achieved.

The outstanding strength of the CrCoNi alloy at incredibly low temperatures makes it possibly applicable in the future, among others, in objects traversing space⁹.

I think you will agree with me that the past year has brought us some really interesting chemical developments and discoveries. The presented ten is merely a part of what has changed in the world of chemistry, but it is also proof of how much science is developing despite having to face many challenges. All that's left to do now is wait for what's to come in 2023!¹⁰.

I think you will agree with me that the past year has brought us some really interesting chemical developments and discoveries. The presented ten is merely a part of what has changed in the world

of chemistry, but it is also proof of how much science is developing despite having to face many challenges. All that's left to do now is wait for what's to come in 2023!

Marta Lipka
Marketing Specialist
PCC Rokita

⁷ <https://www.fnpp.org.pl/prof-bartosz-grzybowski-laureat-nagrody-fnp-2022/>

⁸ <https://www.national-geographic.pl/artukul/naukowcy-opracowali-ultracienkie-ogniwa-sloneczne-moga-zmienic-kazda-powierzchnie-w-zrodlo-energii-221212125125>

⁹ <https://www.science.org/doi/10.1126/science.abp8070>

¹⁰ <https://mobirank.pl/2022/12/14/prosty-stop-tworzy-najtwardszy-material-jaki-kiedykolwiek-zarejestrowano/>

AI vs. detection

- Will we be able to recognise AI-generated content?

Since the publication of the previous newsletter issue, the GPT chat has evolved before our very eyes from the GPT3 model to the GPT-4 model, once again extending its capabilities. Despite the incredible pace of development and newer and newer achievements, we are still merely at the beginning of the revolution. The future of AI, while promising, is fraught with challenges, controversies, and fears.

Today we will try to dispel one of them and take a closer look at the different ways to recognise content generated by artificial intelligence.

GPT-3 vs. GPT-4 - what's changed?

OpenAI did not let us relax for too long and on 14th March published a refreshed GPT-4 model. According to the announcement given by its creators, the new version has gained much expanded creativity. It was also given greater capability to understand text. GPT-4 is capable of handling more than 25,000 words, enabling applications such as creating long descriptions, extended conversations, or searching for and analysing documents. To show you the difference, the previous version was only able to process 3,000 words.

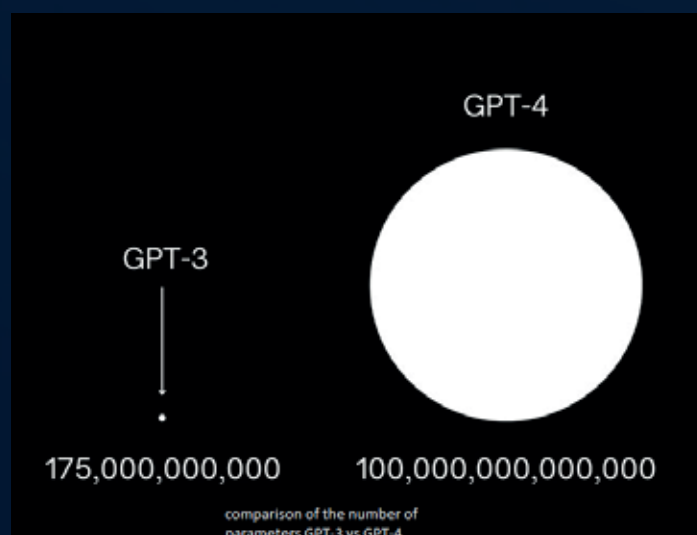


Image analysis - enter the image and AI will analyse it

In addition to text commands, GPT-4 has also gained the ability to analyse images that you can enter into the system as input data. The creators of GPT-4 boast that the latest version of this model has an impressive ability to precisely recognise images it's presented with, such as photographs taken by the Hubble Telescope. Moreover, GPT-4 can describe them with great accuracy. According to the announcement, the latest

model from Open.AI will be able to analyse different types of images from various fields – including documents with text and photos, charts, diagrams and screenshots. The image analytics feature, however, is still in the testing phase and not yet available to all users.

An example of how GPT-4 parses graphics:

During the GPT-4 presentation, the chatbot was confronted with a picture of a phone connected to a VGA cable. The task was to explain why this situation is funny. Although the task was quite abstract, the chatbot handled it without any problems.

Here's GTP-4's response:

The image shows a package for a "Lightning Cable" adapter with three panels.

Panel 1: A smartphone with a VGA connector (a large, blue, 15-pin connector typically used for computer monitors) plugged into its charging port.

Panel 2: The package for the "Lightning Cable" adapter with a picture of a VGA connector on it.

Panel 3: A close-up of the VGA connector with a small Lightning connector (used for charging iPhones and other Apple devices) at the end.

The humour in this image comes from the absurdity of plugging a large, outdated VGA connector into a small, modern smartphone charging port.



The development of AI - it's getting more and more difficult to detect text written by a machine

So far, we've been focusing on AI's capabilities and development or its benefits, but let us now reverse the situation a bit. How do we tackle the issue of recognising content created by machines? Do marketers using the services of copywriters or teachers checking students' work have tools that will help them detect content created by machines? Are we keeping up with the development of AI in this matter?

In March this year, hundreds of businesspeople (led by Elon Musk), investors and AI experts called in the Future of Life Institute for work on the development of AI to be suspended for a period of 6 months.

“Powerful AI systems should be developed only once we are confident that their effects will be positive and their risks will be manageable,” the authors warned us.

In a sense, the ability to verify a text fits into this appeal, which is why I will try to introduce here some of the methods and show you some tools that will help you distinguish between man- and machine-written text.

Firstly - the syntax, secondly: intuition.

In previous GPT language models, when analysing text, it was possible to capture certain characteristic attributes.

As humans, most of us tend to write texts that are complex in form. We make compound clauses and compound-complex sentences, we use numerous commas and conjunctions. This is the first thing that distinguishes us from bots.

Another element is our temperament and personality, which lead to us making unconventional (in comparison to AI) forms of expression. This means, for example, combining longer, more complex sentences with shorter ones that state a fact or opinion, or making emotionally charged sentences. In case of AI, in turn, it all comes down to roughly the same level of expression. Adding our intuition to the above, one might be tempted to say that, for a trained eye, the probability of recognising a text written by AI is actually quite high. However, the situation is dynamic, and subsequent versions of ChatGPT are being improved in this aspect as well, which is why, without the help of proper tools and programs, it is becoming very difficult to recognise text generated by AI.

Interesting fact:

In mid-February, the Amazon Kindle store offered more than 200 e-books where ChatGPT was listed as either an author or co-author.

Source: <https://lubimyczytac.pl/boty-pisza-ksiazki-w-kilka-godzin-chatgpt-przejmuje-amazona>.



Thirdly – tools, fourthly: even more tools

In response to the content generated by ChatGPT, there have been many tools developed on the market with the task of recognising the source of the text in mind. What algorithms do these programs use? We don't really know. The first popular tool, by Edward Tian of Princeton University, was GPTZero.

The creator of the tool revealed that it is mainly the above-mentioned factors that are taken into account when making the determination.

List of tools for detecting AI-written text:

- **GPTZero** - www.gptzero.me – a completely free tool. The first to become highly popular.
- **Copyleaks** – www.copyleaks.com – a free tool with an additional feature for plagiarism detection.
- **Orgianality.ai** - www.orgianality.ai – a paid tool with the option of buying credits. According to the information on their website, it is the most effective tool of all.
- **Illuminarty** - www.illuminarty.ai – a free tool for detecting images created by AI
- **Quillbot** - www.quillbot.com – a plagiarism detection tool, partly free
- **Copyscape** – www.copyscape.com – a plagiarism detection tool, paid, with the option of buying credits.

When it comes to tools for recognising graphics generated by AI, their effectiveness is quite low. There are some online tools but, unfortunately, they are far from perfect.

Luckily, Google comes to our rescue here, as they announced a few days ago the launch of a new tool and new functiona-

lities. Their goal will be to help users determine the original source of the image and its context. Google announced also that the graphics generated with the use of their AI tools will be marked in a way that will make it clear for the recipients.

The challenge of detecting AI-generated content: Can tools keep up with AI?

Undoubtedly, with the advancement of AI come new difficulties, such as detecting machine-generated content. In response, new tools and algorithms are created to effectively recognise it. Tools such as GPTZero, Copyleaks or Orgianality will help us in this, but will they keep up with the pace of AI development? We'll find out soon enough.

Kamil Plewka
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Dubai

- is it still the city of the future?

I spent this year's holidays in Dubai! I came back to this city after seven years to see what has changed and how it has changed. There was no need to ask myself if anything had changed, it was obvious. I returned to Dubai probably at the best possible time – Ramadan.

Today, you can fly directly to Dubai from Warsaw, Katowice or Poznań (soon) – and there are two airlines to choose from (soon there will be a third one, too), offering different travel standards, but all equally safe, for sure. After about 6 hours, you set foot in the Arab Emirates! The cost of tickets varies – you need to look for a good offer to fly cheaper (unfortunately, flying cheap is not an option nowadays).

It is an ideal destination for all those who wish to take a break from grey and rainy weather and the cold and relax in the sun. In late March –

a rainy and cold time in Poland – I was greeted by beautiful, sunny weather and temperature of about 23 degrees. Although it rained a bit on my second day there, the weather was perfect for the remaining part of the holidays! And perfect not only for lying on the beach, but also for sight-seeing. So, off to Dubai!

What probably surprised me the most upon my arrival in Dubai were the changes in the city's architectural landscape. Although Dubai was the host of EXPO 2020 (due to Covid, it was held at the turn of 2021/2022), the amount of change that took place in the city really took me by surprise.

Back in the day, having lived in Dubai for almost 5 years, I thought I knew the city quite well. But that changed upon arrival in March – the number of changes in the city exceeded my expectations, but it was all a great, positive surprise. A city of tomorrow!

You come across a lot of all the change already at the airport. The fact that the exit gates from the airport have been automated (for locals) is no big news, but the fact that when leaving the airport with luggage you can buy... alcohol – that was a huge surprise for me. Years back (7 to be precise), if you wanted to buy alcohol in a shop, you had to have a special licence for that, and it could be purchased in only few places in Dubai – apart from clubs or restaurants, of course, where alcohol prices were

sky-high. Today, alcohol has become more easily available to tourists, although still very expensive. We reach the house that we'll stay in for a bit under two weeks and wait for a new day to arrive!

And the new day greets us with... rain! Rain is not uncommon in the Arab Emirates. It actually rains quite often in winter or early spring – which most of our readers might not know about. Rain in Dubai can be quite heavy, and it can also be quite cold, as the temperature there can drop to merely few degrees above zero. But it can also go to well above 40 degrees in the summer.

The EXPO 2020 exhibition was attended by 24 million people, which required a significant expansion of



the city's infrastructure and adaptation to millions of visitors. This contributed to the significant expansion of access roads to the EXPO, but also required a lot of investment in the city to keep traffic flowing smoothly. Dubai is one of the fastest growing cities in the world. While in 1965 the population of the Arab Emirates amounted to 150,000 people, in 2022 it neared 9.5 million and the upward trend still continues. When speaking of these figures, it is worth mentioning that nearly 70% of the people are men and 30% are women.

Dubai's residents need to move around the city efficiently, which is why its transport systems are very advanced. Fully automated underground trains (continuously expanded), a bus communication system (constantly adapted) and even a... tram! During my stay, I also noticed that scooters have become quite common - they are probably mainly used by the residents, moving around in

a very dangerous way... I wonder when they will be banned?

The city is developing for sure. In the Sustainable City district, in the supermarket you can come across robots that look after store shelves, and in the residential area you can meet automated vehicles that deliver everyday products to the customer's address.

Efforts to introduce fully autonomous taxis are also at a very advanced stage. And while we're on the topic of taxis - the growth is incredible, the numbers speak for themselves:

- 81 taxis in 1995
- 6513 taxis in 2023
- More than 11,000 drivers

Does this make it easy to get a taxi during rush hours? Unfortunately, no. The wait for a taxi can take up to several dozen minutes. Currently, the fleet is being replaced with a more

eco-friendly cars (hybrids).

In general opinion, Dubai is uncontestedly the safest place in the world. It's a fact, regardless of the season, you can feel really safe there.

The Dubai Police Force have their famous supercars fleet (although I haven't seen any of them during this stay, in 2013 or 2014 I did see one on the streets of Dubai). So no resident of Dubai will ever be surprised by the police in an Aston Martin, a Bentley Continental GTS, a McLaren, a Ferrari or a Lamborghini, although these are not cars that you can see every day (although the "ordinary" BMW fleet is not bad at all). Interestingly, on the streets of Dubai you can find a Dubai-made police car (for those interested, enter GHIATH in your search engine), which can scan not only licence plates but also people's faces and then transfer the data to the headquarters, and all that while on the move. A built-in camera



with 30x zoom, cameras all around the vehicle are standard. What's most interesting about this car, though, is the fact that 30% of it was built on a 3D printer. Dubai has also set



a Guinness World Record for the world's fastest police car – the Bugatti Veyron, which goes up to 406 km/h.

Of course, Dubai also has great, contemporary architecture. The tallest building in the world – Burj Khalifa, one of the largest shopping centres in the world – Dubai Mall, the world's tallest 4- and 5-star hotels. These are just a few of the city's iconic buildings. Dubai is, of course, the city of skyscrapers, with over 200 skyscrapers, and the number of tower blocks reaches over 900!


Is Dubai the city of the future? Definitely yes. The development the city is undergoing is beyond belief. Changes are happening all around the city on a daily basis. More projects are being launched – i guess the Museum of the Future in Dubai will soon become a museum of the present.

Is Dubai worth visiting? Definitely yes, and no other answer exists.

There is no other city like Dubai in the world, there is no other community like that of Dubai in the world. It's worth noting here, however, that – in my opinion – the city's pursuit of the future is happening to the detriment of the cultural and religious values of the city and its indigenous inhabitants (I don't understand why most of the Ramadan bans have been lifted, why alcohol has become widely available). It's hard for me to understand, but this is probably what the future will look like.

Maciej Trubisz
Editorial Team





How to solve a problem?

Problem solving

Encountering problems is an indispensable stage in continuous organisation improvement. Through making use of troubleshooting tools, you can eliminate the obstacle and develop an effective solution. The most important step in running a problem solving project is identifying the goal and choosing the right methods.

Problem Solving is an effective method of solving problems through systematised, structured and described approaches to solving them.

There are some rules to remember in order to solve problems effectively:

- Through analysis, move from the general to the specific
- What counts are data, facts and figures – not opinions
- Don't place blame or look for the guilty party, look for errors in the system, method, process, standard of work
- Try to understand the root of the problem

- Eliminate the problem by implementing a new work standard

There are many problem solving tools, but the most commonly used one is the PDCA Problem Solving method. It consists of four consecutive phases:

- Plan
- Do
- Check
- Act

This method gives you the opportunity to perform a detailed analysis to understand the cause of the problem and determine the methods to solve it.



PDCA cycle phase	Stages of the process	Auxiliary methods / techniques
Plan	1. Identifying and defining the problem.	5W2H analysis
	2. Creating a project team.	-
	3. Investigating the current state.	checksheet, flow chart
	4. Setting the goal to be achieved.	SMART
	5. Identifying the causes of the problem and developing solutions to the problem.	brainstorming, Ishikawa diagram, Pareto chart, 5XWhy analysis, correlation chart, flow chart
	6. Setting priorities and making decisions.	-
DO	7. Implementing and perfecting solutions.	Gantt chart, action plan
CHECK	8. Monitoring and evaluating solutions.	Shewhart Control Charts, SWOT analysis
ACT	9. Implementing new standard.	Ishikawa diagram, Gantt chart, action plan

When analysing individual process steps, you can use various well-known auxiliary methods and techniques. This will allow you to conduct a detailed analysis and obtain a solution to the problem.

To define the problem, the 5W2H method is used. Its name comes from the following five questions:

- **Who?**
Who reported the problem?

Are other customers receiving the same products and reporting the same problems?
- **What?**
What is the problem? What exactly happened?

Which product is affected? Batch number determination. Does the problem affect one batch or more?

- **- When?**
When the situation occurred, exact date, time?

Date and time of production, delivery date. Has the problem occurred before, how often, is it a chronic problem? What were the circumstances?
- **Where?**
Where is the situation happening, is it one area or more?

Where has the problem occurred? At what stage of the process?

- **Why?**
Why is this problem?

Why has the problem arisen? What are the pre-known, previous causes of this type of problem? Have any guidelines/procedures been ignored? Do such even exist?

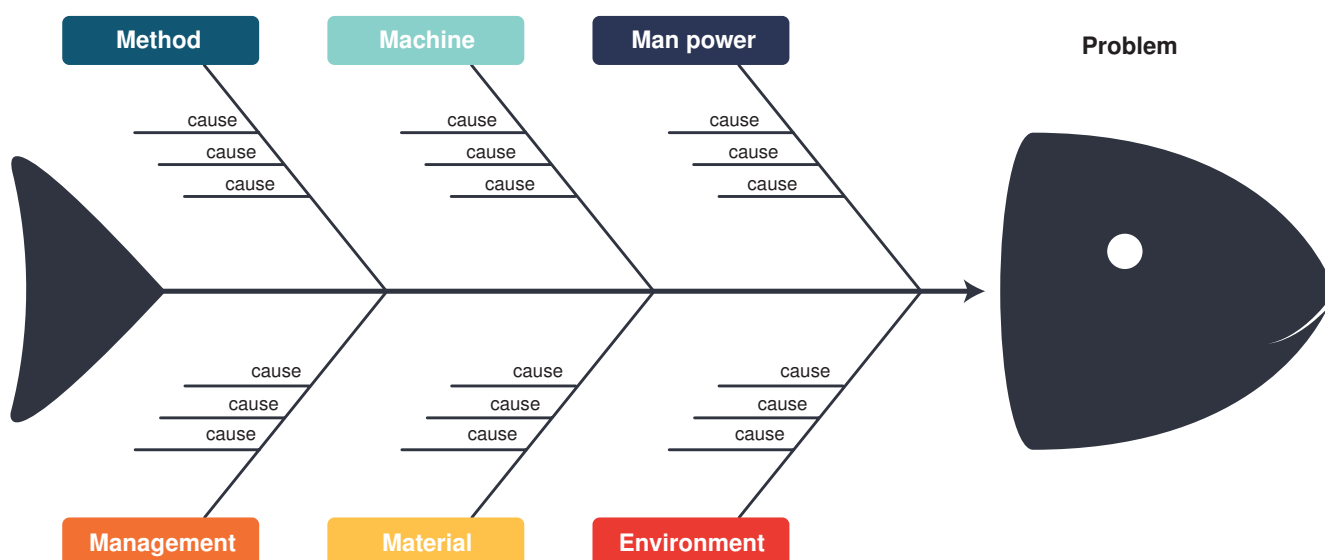
- **How?**
How was the problem discovered?

What is the mechanism behind these types of problems? What must happen for the problem to occur?
- **How much/ many?**
How big is the population of the affected product?

What is the scale of the problem? What are the costs for us?

Once the problem is defined, it will be important to set the goal to be achieved. To do that, you can use the **SMART** method, which allows you to accurately specify the goal using five features.

- S** specific
- M** measurable
- A** achievable
- R** relevant
- T** time-bound



Then, when the goal has been set, you can proceed to identify the causes of the problem. At this stage, you can use many popular tools and methods:

Brainstorming

It is a creative method that allows you to generate as many ideas as possible in the shortest possible time. The method was created by Alex Osborn, and it has many variations, including:

- individual brainstorming – generating ideas by one participant;
- the 6-3-5 technique – 6 participants generate 3 ideas each within 5 minutes;
- the Phillips 66 technique – participants work in groups of 6 for 6 minutes to create as many ideas as possible.

The Ishikawa diagram

It is a cause and effect diagram, commonly known as the fishbone diagram. The main purpose of using this method is to determine the causes of the problem and to examine the relationship

between them. You can analyse them in terms of:

- Man power
- Method
- Machine
- Material
- Management
- Measurement
- Money
- Environment

The Pareto Analysis

This method, also known as the 80/20 Rule, assumes that 80% of the effects come from 20% of the causes. The method allows you see that elimination of a small number of causes will lead to process improvement. The Pareto diagram is a graphical representation showing both relative and absolute distribution of the types of error, problem, or their causes.

The 5Whys

This method is especially useful at the stage of defining the problem and determining its root causes. It consists in asking the question 'why' five times in order to be able to identify the relationships

between the various causes that generate the problem.

The main advantages of this method lie in its ease of use, flexibility and creativity. You get a chance to involve the team in the process of solving the problem.

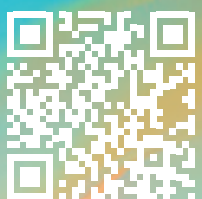
Tools such as: PDCA, Ishikawa diagram, brainstorming or 5W2H are easy methods that allow you to improve the way the organisation operates. They do not require the project team to be highly qualified.

It is crucial that the organisation uses the potential and creativity of its people, and thus allows them to develop. The use of problem solving methods makes development possible for both the organisation and its employees.

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