

Kaj uspešne male in srednje velike evropske livarne delajo prav?

What are Successful Small and Mid-Size Foundries in Europe Doing Right?

Čeprav je livarska industrija v primerjavi z drugimi majhna, je kljub temu pod vplivom globalnega razvoja. V Evropi imajo livarne presežne zmogljivosti za skoraj vse lite materiale in različne postopke ulivanja, zato je vsakemu livarju jasno, da če on ne bo izdelal določenega ulitka, bo to pač storil nekdo drug. Livarji dobavljajo velikim industrijskim sektorjem. V primerjavi z avtomobilsko, energetsko, strojno, elektrotehnično in gradbeno industrijo pa so za evropsko livarsko industrijo, ki se ukvarja z dobavo, značilna mala in srednje velika podjetja, ki so pogosto v zasebni lasti. Zato je jasno, da je evropska livarska industrija pogosto pod izjemnim pritiskom prilagoditvam poslovnim navadam svojih strank.

Te razmere male in srednje velike livarne silijo v razvoj jasnega vpogleda in strategije glede tega, kar je dobro za njihova podjetja – najsij to velja za razvoj poslovnih potencialov ali preživetje.

Najprej: kaj pojem »uspešno« pomeni za male in srednje velike livarne?

Včasih svetovalci ali tako imenovani poslovni svetovalci, ki si prizadevajo za to, da bi podjetja postala uspešna, vztrajajo, da se je treba osredotočati na »to, kar deluje in prinaša dobiček«. To je seveda pravilno, a ne posega dovolj globoko. Na primer: naložbe in inovacije nikoli ne prinašajo dobička že na začetku, odločitve za ključne

Even though the foundry industry is a small industry compared to others, it is sustainably influenced by global developments. In Europe, foundries have overcapacities for almost all casting materials and for the different casting processes, i.e. it is clear to every foundryman that if he does not produce a certain cast part, someone else will do it. Foundrymen supply to the big industries: In comparison to the automotive, power, mechanical, electrical and building industry the supplying European foundry industry is characterized by small and medium enterprises, often in private ownership. So it is clear, that the European foundry industry often gets massively under pressure to accept the business habits of their customers.

This situation forces small and mid-size foundries to develop a clear vision and strategy for the benefit of their own company – whether it is targeted to develop business potentials or to survive.

First of all: what does „successful“ mean for small and mid-size foundries?

Sometimes consultants or so called business advisors, engaged to make enterprises successful, preach to concentrate "on what works and is profitable". This is for sure right, but clearly doesn't go far enough. For example: Investments and innovations never are profitable from day one, decisions for critical or not profitable processes have

ali nedobičkonosne procese je včasih treba sprejeti zaradi strateških razlogov in dolgoročnih perspektiv. Poleg ostalih so te točke na splošno dobro sprejete osnove za uspeh podjetja.

Danes bi bilo treba uspeh malih in srednje velikih livarn meriti glede na njihovo dobičkonosnost, trajnost, prosti kapital za naložbe, potencial za inovacije in prilagodljivost – tako intelektualno kot z vidika razvoja in proizvodnih zmogljivosti.

Upravljanje stroškov in možni dobiček

Za spopadanje z zahtevnimi izzivi postopkov ulivanja in proizvodnjo celovitih ulitkov, ki izpolnjujejo zahteve glede kakovosti, so vselej potrebni usposobljeno osebje, znanje in izkušnje. Vse pogostejše pa so usposobljenost ter znanje in izkušnje obvezni v vseh fazah izračuna stroškov, od izdelave ponudbe do predhodne ocene stroškov proizvodnje. Za livarno je ključnega pomena, da je – pred sprejemom naročila – čim bolj seznanjena s proizvodnimi tveganji in potencialnim dobičkom, ki ga realno lahko pričakuje. Prav tako je bistveno, da po dostavi proizvedenih izdelkov oceni vse izdatke in doseženi dobiček. To je treba sprejeti kot osnovni predpogoj za uspeh vsake livarne.

Izdelki in stranke

Ponudba posebnih ulitkov, ki jih livarna lahko proizvaja oziroma bi jih morala proizvajati, je odvisna od proizvodnih obratov in izkušenj z določenimi deli, materiali in postopki. Če vse pade na svoje mesto, dobimo največji možni potencial za uspešno in dobičkonosno proizvodnjo. Ali se osredotočimo samo na to? Ne, saj je to zgolj interni zorn kot določene livarne.

Gledano od zunaj – torej z zornega kota potencialne stranke – najprej

sometimes to be taken for strategic reasons and long term perspectives. Among others, all these points are well accepted cornerstones for enterprise success in general. Today SME foundry's success should be measured by their profitability, sustainability, free capital for investments, innovation potential and flexibility – both intellectual and from the viewpoint of development and production capacities.

Cost Management and Profit Potential

Qualified staff and know how is always required to handle the challenging issues of casting processes and to produce high integrity castings that meet the demands in quality. But more and more, this qualification and know how is also mandatory for all phases of cost calculation from the quote to the past production cost assessment. It is essential for the foundry to know – before an order will be accepted – as much as possible about production risks and the potential profit that realistically could be expected. And it is also essential – after the produced parts were delivered – to assess the total costs spent and achieved profits. This has to be accepted as a general prerequisite for any foundry's success.

Products and Customers

The range of particular castings, that a foundry can or should produce, depends on its production facilities, and experiences in certain parts, materials and processes. If all that fits together, the maximum potential for a successful, profitable production is given. So, just concentrate on this? No, because this is only the foundry's internal point of view. From the outside - meaning from the potential customer's point of view - this range of castings is visible first of all. For example they just see "an aluminum cylinder

opazimo ponudbo ulitkov. Na primer: stranke vidijo samo »livarno, ki izdeluje aluminijaste glave valjev« in ne livarne, ki lahko proizvaja ulitke, izdelane s pomočjo jeder, iz različnih zlitin, vključno s toplotno obdelavo za upravljanje mikrostrukture, zmožno obvladovanja različnih kompleksnih pristopov za ulivanje z malo turbulencami na različnih peščenih ali trajnih formah. Z enako stopnjo pomembnosti pa kupci livarjev ocenijo usposobljenost in reference svojih potencialnih dobaviteljev. Mimogrede, kakovost in zanesljivost dobavitelja ne predstavljata več konkurenčne prednosti določene livarne, saj to njene stranke pričakujejo.

S pogledom na tržišče morajo trženje in prodajne aktivnosti livarne to odražati z zagotavljanjem in zaščito jasne predstave zmožnosti livarne. Ta predstava mora biti jasna in prepoznavna od zunaj. Vendar pa interni zorni kot livarne zahteva širšo perspektivo: jasna in dobra predstava z notranjega zornega kota ne bi smela pomeniti ozke osredotočenosti in velike specializacije. Specializacija je bila zelo pomembna v 90. letih 20. stoletja, ko so lokalne proizvodne zmogljivosti izpolnjevale zahteve lokalnih tržišč. Danes pa se svetovno tržišče sooča s presežnimi zmogljivostmi in kupci litih izdelkov (menijo, da) lahko iščejo ponudbe vseh povsod. Zato sta v določeni meri potrebni raznolikost in prilagodljivost za kar največjo sposobnost odzivanja na spreminjajoče zahteve tržišča. Če bi se pojavili novi tipi ulitkov, bi kupec ulitkov morda lahko spregledal livarno, tako da je ne bi niti prosil za pripravo ponudbe. Znova je treba poudariti, da livarna ne bi smela biti znana kot specialist za »izdelavo glav valjev«, temveč kot »livarna, ki je kvalificirana za izdelavo ulitkov, kot so glave valjev« (intenzivnih v jedru, toplotno obdelanih itn., gl. zgoraj).

head foundry” and not a foundry capable to produce core intensive castings from different alloys, including heat treatment for microstructure management, capable to handle different complex low turbulence pouring approaches in different sand or permanent molds. But almost on the same level of importance casting buyers assess their potential supplier’s qualification and references. By the way, quality and supplier reliability are no competitive edges of a foundry any more, but a clear expectation of its customers.

With direction to the market, the foundry’s marketing and sales activities have to mirror this by providing and defend a sharp profile of the foundry’s capabilities. This profile has to be clear and visible from the outside. But the foundry-internal point of view requires a wider perspective: a clear and sharp profile should internally not mean a narrow focus and high specialization. Specialization was a key issue in the nineties, where local production capacities met local market demands. Today there are production overcapacities in the world market and casting buyers (think that they) can source everywhere. So diversification and flexibility for a maximum ability to respond on changing market demands are required to a certain extent. If new types of castings come along, the casting buyer might overlook the foundry so that it is not even invited to bid. Again, a foundry should not be visible as specialized “cylinder head foundry”, but as “foundry being qualified for castings “like cylinder heads” (core intensive, heat treated etc., see above) Specialization is also dangerous, because often it goes hand in hand with fewer customers and a higher dependency on their success and commitment.

Generally a foundry does not necessarily has to successfully produce a wide range of completely different parts, but to develop

Specializiranost pa je tudi nevarna, kajti pogosto jo spremljata tudi manjše število strank ter večja odvisnost od njihovega uspeha in zvestobe.

Na splošno za livarno ni ključno, da uspešno proizvaja široko paleto popolnoma različnih izdelkov, pač pa da razvija in ohranja poglobljeno konkurenčnost ter zmožnosti, da to hkrati poudarja na tržišču. Po drugi strani pa se v primeru, ko gre livarna prek svojih dejanskih zmožnosti in kompetenc pri naročilih, pojavi neizogibno tveganje, da so druge livarne boljše opremljene, kvalificirane in imajo zato več možnosti, da pri izdelavi teh izdelkov ustvarijo večji dobiček.

Včasih bi bilo, ko določena skupina izdelkov preprosto preneha obstajati zaradi svetovnih tehnoloških smernic, morda treba poiskati nove. V tem primeru seveda za livarno to, da se pripravi na novo paleto izdelkov, predstavlja velik strošek. Za ohranjanje uspešnosti so inovacijske zmogljivosti, potenciali in tudi kapitalski viri livarne ključni parametri za upravljanje potrebnih vlaganj in sprememb. Seveda je treba razumeti tudi tržišča, njihove smernice in prihodnje potrebe.

Pa tudi obseg strank mora biti čim večji. Za livarno, ki dobavlja avtomobilski industriji, je ključnega pomena, da dobavlja različnim proizvajalcem originalne opreme, ki delujejo neodvisno drug od drugega. Tako za pridobivanje novih strank kot informiranje obstoječih mora livarna v vsakem trenutku izkazovati zgoraj omenjeno jasno sliko skupaj s pripravljenostjo, zavezanostjo in zmožnostjo zagotavljanja podpore novim zahtevam strank.

Na nestanovitnih tržiščih je mnogo poslovnih priložnosti. Proaktivna livarna mora obstoječe in potencialne prihodnje stranke obveščati o načrtovanih vlaganjih in drugih ustreznih spremembah. Kljub funkcionalnemu in profesionalnemu

and maintain the principal competence and capabilities to do so and, at the same time, make this visible to the market. On the other hand, if a foundry goes for orders beside their real capabilities and competences, it is an inevitable risk that other foundries are better equipped, qualified and therefore more capable to be profitable in producing these parts.

Sometimes, when certain product families simply die due to worldwide technology trends, it might be necessary to seek for new ones. In such a case it is of course cost intensive to get a foundry prepared for a new product range. To stay successful, the innovation capabilities and potentials as well as the foundry's capital resources are key parameters to manage the necessary investments and changes. And of course the markets, their trends and upcoming needs have to be well understood.

Naturally the range of customers should be as wide as possible. For a foundry supplying the automotive industry it is essential to deliver to different OEMs which are independent from each other. For the acquisition of new customers but also for the information of existing customers, the foundry always has to show the above mentioned sharp profile together with willingness, commitment and capabilities to support the customer's new demands.

In volatile markets are many business opportunities. For a proactive foundry it is necessary to keep existing and possible future customers informed about planned investments and other relevant changings. Despite of a functional and professional business relation, it is an essential part of the business to establish and maintain trust.

poslovnemu odnosu je ključni del poslovanja vzpostavitev in ohranjanje zaupanja.

Struktura, delovne metode in upravljanje

V zadnjih dvesto letih se je izdelava industrijskih ulitkov iz ročne izdelave razvila v to, kar je danes. Struktura livarne, ki je sestavljena iz tipičnih delovnih obratov, kot je talilni obrat, obrat za ulivanje ulitkov, obrat za izdelovanje jeder, čistilnica, obrat za preverjanje kakovosti itd., navadno sledi pretoku materiala in ulitkov. To pogosto ne velja za livarne, ki so se razvijale z notranjo rastjo, vendar pa bi morale veljati za nove livarne, ki so na novo zgrajene.

To je primer načela, ki se je razvilo dolgoročno in je dandanes tako dobro sprejeto, da nihče ne podvomi vanj. Eden od razlogov za to je seveda, da je načelo »zgradba sledi pretoku materiala« na splošno dobro sprejeto skorajda v vseh proizvodnih panogah. S tega vidika lahko upravičeno trdimo, da livarne to načelo uporabljajo kot standardno prakso.

Če pa podjetnik, ki se ukvarja z livarstvom, želi napredovati, najti in uresničevati inovacije ter pridobiti novo konkurenčnost, prav gotovo skoraj nikoli ne sme početi tega, kar načeloma počnejo drugi. Ena od izjem je tudi, da mora biti livarski inženir vedno odprt za nove zamisli, ne glede na to, od kod izvirajo. Inovativna podjetja so dokazala, da ustvarjanje novih zamisli, sledenje in ocenjevanje zamisli ter razvoj nekaterih izmed njih do mere, da postanejo inovacije, prinaša rezultate, ki se kažejo v novih dobičkonosnih poslovnih priložnostih in trajnostnem upravljanju podjetij. Prav tako pa je dokazano, da pride več zamisli, ki privedejo do dejanskih inovacij, iz vrst delavcev v obratih in ne s strani visoko plačanih svetovalcev.

Structure, Working Methods and Management

Over the last two hundred years the industrial casting production was developed from handcrafting to what it is today. A foundry's structure, made up by the typical functional departments like melting shop, molding, core shop, fettling, quality department etc. usually follows the flow of material and castings. This is in organically grown foundries often not the case but should be in the new ones, planned and built on the green field. This is an example for a principle that has developed over a long time and is so well accepted these days that eventually nobody is questioning it. One of the reasons for this is of course, that the "structure follows material flow" is generally well accepted in almost all production facilities. From that point of view it is fair to state that foundries follow this principle as a standard practice.

But, if a foundry entrepreneur seeks for improvement, if he wants to find and realize innovations and to gain new competitiveness, he should definitely almost never do things on principal. One of the few exemptions is that a foundry engineer should always open his mind for new ideas from wherever they come. Innovative companies have proved, that generating new ideas, tracking and evaluating them and develop some to become innovations, finally result in new profitable business opportunities and a sustainable enterprise management. And it is also proved that more ideas leading to real innovations come from the shop floor level than from highly paid consultants. The backbone of a foundry's innovation capability is the qualification of all technical employees from shop floor over engineering to management.

The foundry business is characterized by more influencing parameters as most

Poglaviten dejavnik inovacijske zmogljivosti livarne je usposobljenost vseh tehničnih zaposlenih, od delavcev v obratih prek inženirjev do vodstvenega kadra.

Na livarsko industrijo deluje več dejavnikov kot na katero koli drugo proizvodno industrijo. Tehnično in poslovno upravljanje podjetij se sooča z vse zahtevnejšimi strankami, ki pridobivajo ponudnike povsod po svetu, konkurenco na vsakem koraku, globalnimi cenami za materiale in energetiko, metalurgijo, taljenjem ulivanjem, proizvodnjo jeder, na stotine procesnimi parametri, kakovostjo ter sledenjem časa in stroškov. To, da imamo vse to pod nadzorom – tako kot žongler spremlja vse žogice hkrati – je še eno jamstvo za uspešnost livarne.

V srednje veliki livarni je nadzor nad zgornjimi parametri na ramenih nekaj ljudi z različnimi izobrazbami, izkušnjami, odgovornostmi in osredotočenostmi. Osnove za učinkovit nadzor tehničnih in poslovnih procesov so znane in dobro zasidrane: te osebe morajo sodelovati na podlagi dokumentacije, preglednosti, poštenosti in podpori mentaliteti sodelovanja med oddelki, jasnih odločitev in jasne komunikacije glede strategij, operativnih vprašanj ter razvoja človeških virov. Sodelovalna naravnost je ključni dejavnik za uspeh livarne.

Raziskave in razvoj ter zaposleni

Danes ima lastne oddelke raziskav in razvoja samo še peščica velikih livarskih skupin. Obstaja nekaj skupnih projektov, ki so podprti z javnimi sredstvi, zlasti na evropski ravni. Poleg tega raziskave izvajajo še univerze in raziskovalni inštituti, ki se večinoma ukvarjajo s projekti, ki so znova podprti z javnimi sredstvi ali s strani večjih podjetij. Za uspešno malo ali srednje veliko livarno je ključnega pomena, da natančno upošteva scenarij raziskav in razvoja. To ni

of the other production technologies. Technical and business management are faced with globally sourcing customers with permanently increasing demands, competition from everywhere, global material and energy prices, metallurgy, melting, molding, core manufacturing, hundreds of process parameters, quality, time and cost tracking. Keeping all this under control - like a jongleur keeping all balls in view - is another guarantor for a successful foundry. In a medium size foundry the control of the above mentioned parameters are on the shoulders of a couple of people with different education, experience, responsibilities and focusses. The cornerstones for an efficient technical and business process control are known and well accepted: these people have to cooperate on the basis of documentation, transparency, fairness and support mentality between departments, clear decisions and clear communication on strategies, operative issues, and human resources development. Cooperation mentality is a key factor for a successful foundry.

Research & Development, Employees

Today, only a few large foundry groups still have their own R&D activities. There are some public funded collaborative projects, particularly on the European level. Apart from that, there is research in universities and research institutes, where most of the activities are again projects funded by public or bigger companies. So for a successful small or medium sized foundry it is mandatory to closely follow the R&D scenario. This is not really difficult, since there is a lot of information available from magazines or foundry associations. An important role, even and particularly for SME's, play an involvement in effective networks and seminars, workshops or

zelo težka naloga, saj je veliko informacij na voljo v revijah ali pri livarskih združenjih. Pomembno vlogo, še zlasti za mala in srednje velika podjetja, ima prisostvovanje v učinkovitih omrežjih in na seminarjih, delavnicah ali konferencah, ki se odvijajo po vsej Evropi. Mimogrede, tudi to služi prepoznavnosti livarne, o čemer je že tekla beseda.

Na splošno mora livarska industrija novo znanje v vsakodnevne operacije vključevati hitro, kakovostneje ter na bolj dosleden način. Da bi razumeli, ocenili in uresničili nove smernice ter tehnologije, ki bi zvečali vrednost in uspeh livarne, mora znova združiti odprte glave ter ustrezno usposobljenost.

Konec koncev to drži za uspešne livarne, ki svoje aktivnosti raziskav in razvoja ter inovacij podpirajo s pametnimi finančnimi politikami in trajnostnim podjetništvom.

V številnih evropskih državah že kar nekaj časa obstaja jasen trend, da družbe postajajo vse bolj in bolj odklonilne do tehnologije. To vodi do dejstva, da se mladi vse bolj odločajo za poslovno poklicno pot kot pa tehnično izobrazbo. To je osnovni razlog, zakaj se livarne v razvoju ali rastoče tovarne soočajo z manj usposobljenimi tehničnimi delavci, tehničnimi strokovnjaki in inženirji, ki se izobražujejo tako v industriji kot na univerzah. Hkrati pa vse več in več livarn upravljajo poslovni vodje, vloga sprejemalca odločitev pa se vse bolj odmika tudi visoko izobraženim inženirjem. Za tehnološko usmerjena tržišča in operacije, ki se odvijajo v livarski industriji, bi lahko to predstavljal vprašljiv trend, kajti tukaj vrednote ustvarjajo zgolj tehnologija, kakovost in operativna učinkovitost, ne pa upravne aktivnosti.

Za uspešno livarno je tesno sodelovanje med inženiringom in poslovanjem ključnega pomena.

conferences that are available throughout whole Europe. This, by the way, would also serve the above mentioned visibility of the foundry.

In general the foundry industry has to implement new knowledge faster, better and more consequent into the daily operations. In order to understand, evaluate and realize new trends and technologies to add value and to increase the success of the foundry, again an open mind together with a reasonable qualification are required. All in all it is true for successful foundries that they back up their R&D and innovation activities by intelligent financial politics and a sustainable entrepreneurship.

For quite some time there is a clear trend within many Europe countries that societies get more and more hostile to technology. This leads to the fact, that young people prefer to join a business career rather than a technical education. This is the basic reason, why evolving or growing foundries are faced with less skilled technical workers, technicians and engineers being educated within the industry and at universities. At the same time, more and more foundries are managed by business managers, and the role of a decision maker moves more and more away from even well-educated engineers. In technology oriented markets and operations like in the foundry industry this might be a very questionable trend, because here values are created only by technology, quality and operational efficiency and not by administrative activities. For a successful foundry the cooperation at the same eye level between engineering and business administration is a key factor.

Potentials and Challenges

The greatest potential of the casting processes is the potential to design intelligent, load-matched and highly

Potenciali in izzivi

Največji potencial livarskih procesov je potencial, ki omogoča zasnovo pametnih delov, kjer je mogoče prilagoditi čisto vse: obliko, funkcije, tudi trdnost zaradi različnih obremenitev. Pri izzivih, kot so nizka teža ali lahek material ter energijska učinkovitost, so livarske rešitve zelo konkurenčne drugim postopkom, tj. varjenju, lepljenju ali strojni obdelavi. Edini proces za proizvodnjo kovinskih delov, ki snovalcem omogoča več svobode, so procesi aditivne proizvodnje kovin (AP), ki pa so še v povojih. Tukaj lahko livarne še vedno znova in znova podajajo prepričljive rešitve. Za uspešno livarno to predstavlja izziv, s katerim se je treba spopadati na vsakodnevni ravni.

Takšna livarna mora do svojih potencialnih strank pristopati proaktivno, prav tako pa jih mora razumeti in jim zagotavljati dobro podporo njihovih potreb že od začetka. Za vse industrije po vsem svetu velja, da je večina delov še vedno preprostih, zato kovinski ulitki niso nujno potrebni. Snovalcem je mnogo bližja proizvodnja strojev za obdelavo kot pa litje. Priložnost za uspešne livarne je, da morajo tudi snovalci zagotoviti konkurenčne zasnove. Te zasnove so pametne, drugačne, predvsem pa jih je mogoče izvesti samo z izdelavo kovinskih ulitkov. Na tem področju pa lahko uspe samo livarna, ki zadostno opozarja na takšne možnosti.

Seveda imajo uspešne livarne vselej možnost dodatnega povečanja storilnosti in dodatne avtomatizacije proizvodnje. Digitalizacija tehničnih in upravnih procesov v livarni bo privedla do učinkovitejših rešitev. Poleg tega bo vdor digitalizacije prinesel tudi boljše razumevanje procesov.

V Evropi med izzivi, ki pestijo proizvodno industrijo, prvo mesto pogosto zaseda globalizacija. V tem smislu se morajo livarne zanašati na večanje količine, ki jo zahtevajo

function-integrated free form parts. In front of challenges like light weight or material and energy efficiency, casting solutions are very competitive to other processes, e.g. welding, gluing, or machining. The only metal part production processes, that allow a higher degree of freedom for the designers, are metal Additive Manufacturing (AM) processes that are still in their infancy. Here, the foundries still can achieve convincing answers again and again. For a successful foundry this is a challenge that has to be achieved every day.

Such a foundry has to approach its potential customers pro-active and has to understand and support their needs early and well. Worldwide and true for all industries, the design of a majority of parts is still low sophisticated and therefore metal castings are not necessarily required. A designer is much closer to machining manufacturing than to casting. The opportunity for successful foundries is that also designers need to deliver competitive designs. Such designs are intelligent, distinctive and mostly they can only to be realized as metal casting. Successful in this discipline can only be a foundry which signalizes its possibilities well enough!

Of course successful foundries always have potentials to further increase their productivity, to further automatize their manufacturing. The digitalization of the foundry's technical and administrative processes will lead to more efficient solutions. Additionally, the digital penetration will also improve the understanding of the processes.

As a challenge for the producing industry, globalization often is referred to in the first place in Europe. Here the foundries have to rely on the growth of quantity demanded by the so called emerging markets. Additionally, the production of mass articles even for low and mid standard vehicles and machines

tako imenovani nastajajoči trgi. Poleg tega se masovna proizvodnja izdelkov tudi za vozila nizkega in srednjega cenovnega razreda pomika iz Evrope v svet držav, kjer so stroški izdelave najnižji. Livarne se morajo s tem izzivom spoprijeti z zagotavljanjem boljših in tehnično konkurenčnih rešitev. Nekatere zelo uspešne manjše livarne so prepoznavne in prisotne na potencialnih tržiščih po vsem svetu, prav tako pa se odzivajo na vse pogostejšo zahtevo glede lokalnih odtisov.

Razviti industrijski narodi v Evropi, zlasti evropska livarska industrija, si mora prizadevati za pridobitev in ubranitev vodilnegapoložajana tehnološkempodročju. Kot smo že dejali, obstajajo številni svetovni trendi, ki jih lahko izkoristijo uspešne livarne: zmanjšanje teže litih delov bo ostal glavni cilj na osnovi pametnih zasnov za lahke dele z integriranimi funkcijami. Mešanice materialov, tj. različnih materialov v enem litem izdelku (kompozitno litje), pa tudi hibridne konstrukcije, bodo vse pogostejši. Vse to zahteva močnejši in ciljno usmerjen razvoj zlitin.

Potrebe po vlaganjih, še posebej pa uveljavitev vlaganja v okoljsko dopustne in energetske učinkovite rešitve, so v tem trenutku velik izziv za livarne, zlasti v Evropi. Hkrati pa ne gre pozabiti tudi trajne potrebe po vlaganjih v proizvodnjo, logistiko, obdelavo površin, prilagajanje zlitin, elektromobilnost itn. V tem smislu dobro finančno stanje, s tem pa zmožnost uvajanja sprememb in inovacijska zmogljivost, označujejo uspešno livarno.

Pri tem bi lahko koristilo tudi sodelovanje z drugimi podjetji. Naložbe je mogoče porazdeliti z jasno in pravično razdelitvijo dela ne samo na področju snovanja ulitkov in orodja ter obdelave ulitih delov, pač pa tudi z razdelitvijo ponudbe izdelkov.

move from Europe over the world to the lowest cost countries. Foundries have to take this challenge by offering superior, technically competitive solutions. Some very successful smaller foundries are visible and present in the potential markets worldwide, also answering the increasing demand for local footprints.

The developed industrial nations in Europe, and particularly Europe's foundry industry, must aim for gaining and defending the technological leadership. As mentioned above, there are numerous worldwide trends that can be served by successful foundries: reducing the weight of cast parts will remain a prime goal, based on intelligent design for low weight and function-integrated parts. The mix of material, i.e. different metals in one cast part (composite casting), but also hybrid constructions will increase. All this requires more and very target-oriented developments of alloys.

The investment needs, especially also the enforcement to invest into environmentally uncritical and energy-efficient solutions, is a big challenge for foundries – at this time obviously primarily in Europe. In parallel, there is a permanent need for investments into productivity, logistics, surfacetreatment, alloy adjustment, electro mobility etc. With respect to this, a financially sound situation and with that a sound change and innovation capability characterizes a successful foundry.

Here, cooperations with other companies could be helpful. Investments can be split by a clear and fair division of labor, not only in the field of mold and tool design as well as machining of cast parts, but also by splitting the range of products.

Casting has a Future!

If there is a reasonable economic and political framework, the casting production

Litje ima prihodnost!

Če obstaja razumen gospodarski in politični okvir, ga lahko livarska proizvodnja v nekaj letih doseže in tudi preseže. Potencial za rešitve na področju livarstva še ni izčrpan. Livarne, ki želijo ostati na tržišču, morajo biti nenehno pozorne na svoje marže. Litje je kapitalsko intenzivna proizvodnja in zahteva dosledno naložbeno politiko. Nobena livarna ne more zagotoviti zvečanja proizvodnje in konkurenčnosti brez naložb. Trenutno so naložbe v zmanjšanje stroškov pogosto bolj smiselne kot pa naložbe v zvečanje prometa. Bolje je vlagati v prilagodljivost proizvodnje kot pa v maksimiranje proizvodnje samo ene proizvodne linije. Dobičkonosnost livarne odpira vrata naložbam, pripravljenost delničarjev za ponovne naložbe pa vodi v trajnostno prihodnost podjetja.

Če želi livar uspešno poslovati tudi čez deset let in dobičkonosno livarno predati naslednji generaciji ali pa novemu lastniku, potrebuje vizijo, dobro zasnovo in primerno strategijo. Podjetje lahko nekaj let preživi z izvajanjem ključnih dejavnosti, vendar pa srednje- in dolgoročno ne bo uspešno.

Obstajajo osebe v naši industriji, ki si ustvarjajo izjemno prihodnost. So primeri dobre prakse in pomembno je, da se iz njih učimo. Lahko nas naučijo, kako zaposlene vključiti v podjetje kljub vse večjim in pogostejšim spremembam v delovnem okolju. Sprejemajo odločitve in razloge, zakaj ravnajo transparentno ter svoje zaposlene vključujejo v procese, ne pa da bi jih zgolj obvestili o svojih odločitvah. Če takšne vodje privabimo v livarstvo, smo utemeljili še en steber v prihodnosti litja kovin.

can and will still grow within the next years. The potential for solutions in castings has not yet been exhausted. Foundries, which want to stay in the market, have to pay consequent attention to their profit margin. Casting is a capital intensive production and requires a continuous investment policy. No foundry can ensure an increase of productivity and competitiveness without investments. Currently, investments in cost reductions are often more meaningful than investments in an increase of turnover. It is more meaningful to invest in production flexibility rather than in the one maximized production of one singular product line. The profitability of the foundry opens the door for investments, the willingness of the shareholder to reinvest leads the way to a sustainable future of the company.

If a foundry entrepreneur still wants to be successful in business in 10 years and to pass over a profitable foundry to the next generation or a new owner, he needs visions, a good concept and a suitable strategy. A business can survive for some years from a repeated bread and butter business, but in a mid- or long-term this will not be successful.

There are people in our industry, who create their future impressively. They are good examples and it is important to learn from them! They can teach how to integrate employees into the company, despite more and more frequent changes in the working environment. They make their decisions and reasons why they act in a certain way transparent and involve their employees into processes rather than just informing them about what was decided. If such managers are attracted by foundry business, another column for the future of metal casting is founded.