THRIVE!

Developments, future company profiles, and entrepreneurial skills in the creative industries

Draft-1

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1. Introduction

1.1 Fundamental changes in technology, economy and society require new entrepreneurial competences in the creative industries

Nearly all sectors of the creative industries have undergone massive changes since the beginning of the 21st century. Technology – in the first place the digitalisation – has changed the way of production, sales and distribution fundamentally, new competitors – often from outside the branches – appeared and captured market shares, customer behaviour becomes more volatile, close cooperation with customers (“pro-sumer”) is normality. One effect is that competences become obsolete faster than in the past. As one result the number of companies as well as the number of employees in most of the sectors of the creative industries has decreased in all european countries. For example the printing industry – as part of the creative industries - lost more than 40% of the companies and of their employees during the last 15 years (see Hopkins/van der Heide 2017).

What is new nowadays is the speed of the development. Therefore it gets more and more difficult to predict the future of the business – especially for a perspective of more than 5 years. The following examples of the change in publishing and the shift in the business of printing pictures illustrate the mentioned developments.

Publishing company

The traditional model of the publishing industry followed some kind of a selection process: authors wrote a book and sent the script to the publisher. The publisher checked the authors and scripts and selected those which promised to achieve a dfefined minimum of sales. Publishers are mostly interested in books that can be sold to a large number of readers in quantities. As a consequence the scripts of authors that will presumably be sold in small editions won’t be published.

This model is illustrated in the left part of figure #.

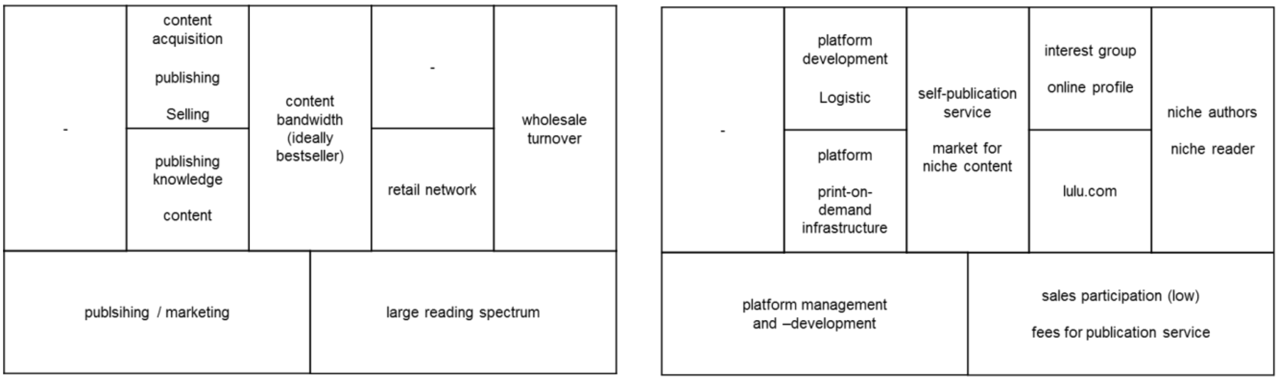

Fig. #: Change in business model of a publishing company
(Source: Osterwalder 2011, p.74f.)

The new model in publishing is converse to the traditional model. It enables any author to publish their books. The core objective of the business model is to support authors to publish their scripts professionally by providing appropriate tools via self-publishing online-platforms (e.g. https://www.lulu.com/). Because the books of the thousands of authors are produced only by print on demand there are no costs for lulu.com in case of failure of a book.

This new model is illustrated in the right part of figure #. The figure shows the fundamental shift in some core elements of the business model: customers change from whole salers to niche authors and niche readers, the kay ressources and competences change from publishing knowledge and content to platform knowledge and print-on-demand infrastructure.

Photography

The example of the developments in the business of photography over the past 40 years show that the pace of change has escalated in the last years. While the process from Kodak's first prototype of a digital camera to the moment when the Cewe's digital department became the core business of the company lasted nearly 30 years there were only about five to eight years necessary until Cewe's photo book might be replaced by social media networks like Snapchat or Flickr (see fig. #).

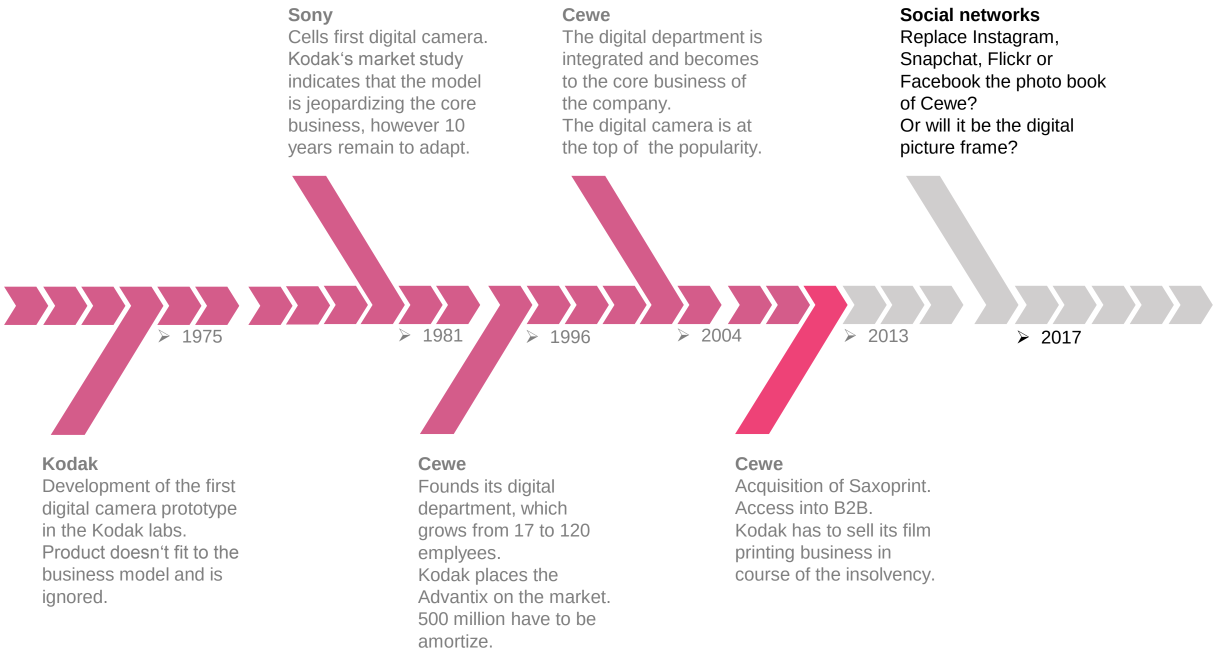

Fig. #: Shift in the business of photography resp. printing photographs (Source: V. Stich 2017)

As a reaction to this developments more and more traditional photographers and photographic shops offer workshops for the end-users in "how to make an individualised photobook". Thus creativity is relocated to the consumer – and support is given in form of digital tools and consultancy.

The two examples reveal the paradigm shift in innovation and entrepreneurship – first and foremost triggered by the digital transformation. New products and services are no longer in the focus of innovation – business model innovation becomes highest priority. Incremental innovations are aout of interest – anyone is eraching for the next disruptive innovation...

Beyond the current discussion that largely concentrates on digital transformation and disruptive changes the developments do not only threaten traditional industries and players. On the other hand the offer tremendous opportunities for entrepreneurs and people with entrepreneurial spirit.

Against this background the cenbtral questions that are dealt wirth in the Thrive!-project are

- What do future companies in the digital industry look like?
- Can some kind of „typical“ company profiles be identified?
- What are the consequences for employees‘ competences and especially necessary skills for entrepreneurial activity?

1.2 Framework and methodology of the (desk) research / study

To answer these questions the desk research on future company profiles and entrepreneurial competences of the future is oriented on the following proceeding.

The company profiles of the future in the creative industry first and foremost depend on the devolopment and changes caused by the trends that influence the middler- and long-term business of the companies in the industry. As framework of the research we chose the concept of the innovation landscape (fig. #):

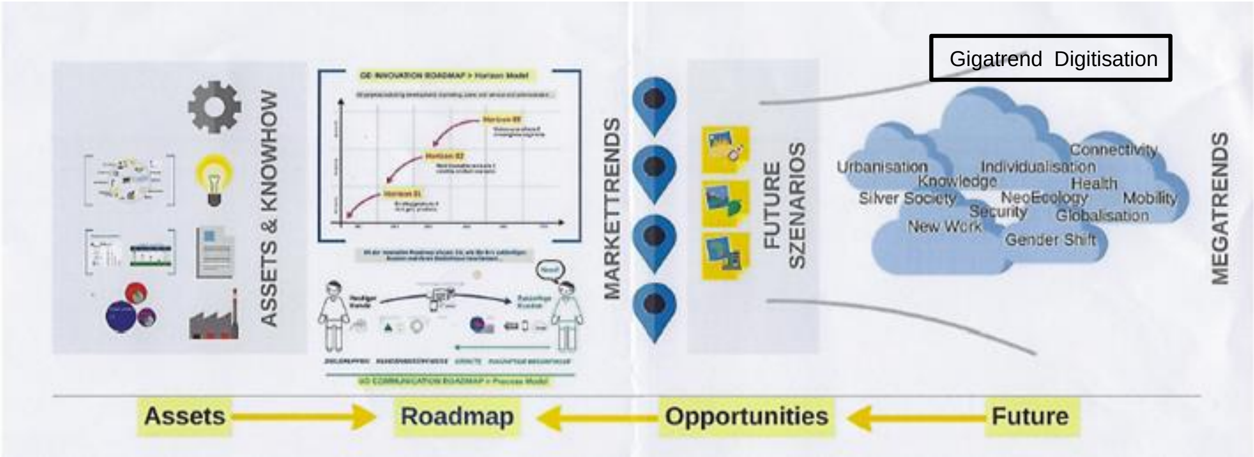

Fig. #: Framework of the study: Innovation-landscape
(Source: Generationendesign 2018)

The approch follows 4 steps:

1. Creation of knowledge and information about the future (focus on trends)
2. Formulation of scenarios
3. Analysis of existing assets and competences
4. Creation of sustainable innovation portfolios on the level of companies and industries

To be able to draw a halfway realistc picture of the future one can look at middle- and long-term trends (so called megatrends). They deliver information about the basic framework conditions of the future. In the context of our desk-research we have analysed the gigatrend “digitisation” and the so-called megatrends and their effects on future business – and competences. On the one hand they deliver information about the potential for new products and services. On the other hand they give hints how work in general will look like in the future. Relating to the Thrive!-project and its focus on entrepreneurial skills and competencies we also analysed current develoments in research on and practice in innovation(management) and entrepreneurship (chapter 2).

And last but not least a third source of information for our study are the specific characteristics of the target groups in the Thrive!-project resp. the particular challenges they are faced with (chapter 3).

In chapter 4 on teh basis of the evaluation of the developments the entrepreneurship ecosystem of the creative industries in the future is described. The model illustrtes the basic structure of the industry and points out the central framework conditions of future work – not only as an entrepreneur.

In chapter 5 the results of chapters 2, 3 and 4 are merged in scenarios for the five selected subsectors of the creative industries in the Thrive!-project. This chapetr involves the illutration of potential business models in terms of the method business model generation CANVAS. By this the variety of possible company profiles in the future is well demonstrated.

Chapter 6 concentrates on the description of the entrepreneurial comptences and skills for the future in the creative industry – differentiated by target groups and subsectors.

2. Developments

2.1 Developments in the creative Industry

The German Ministry of Labour and Social Affairs has conducted a study on future needs of competences in different industrial sectors – among others the creative industry (BMAS 2017).[1] This part of the study is focuseed on advertising – therefore we won't present then results in detail. But: the study delivers some hints on the framework conditions and the requirements for future cpmpetences in the creative sector in general.

Framework conditions

- The creative potential arises from the cooperation in new teams that combine and/or bring together ideas and impulses from different sectors/disciplines
- The integration of several value-added-steps has very limited benefit – the "production"-process is spread on different actors and companies
- Corporate structures in the creative industry reamin small – and they will still diminish
- The number of "micorpreneurs" and "self-employed people" will increase
- Creation of value is more and more carried out in flexible networks – across boundaries of then creative industry as well as countries
- Platform-economy offers new ways of flexible situative cooperation and projects
- Digital platforms enable the networling of employees – transaction costs are kept constantly low
- Tools and media supporting work are developing very fast – as well as the modes of communication do

Challenges of the future in then creative industry are:

- Sense of new dvelopments
- Ability for a creative cooperation in permanent changing teams cnsisting of different cultures and disciplines
- Organisational talent
- Project-management
- Entrepreneurial thinking from the perspective of the customer

With respect to the ncpm,petences and skills the study points out that there will be

- Shift in general competences (valid for nearly any industry):
    - Physical work loose in importance
    - Also knowledge work will more and more be automised
    - Social-interactiv competences will be in demand
- Shift in industry specific competences:
  very different depending on the special insustry resp. sector / sub-sector of an industry

  Professional competences will still be very important in the future!

[1] Bundesministerium für Arbeit und Soziales, 2017: KOMPETENZ- UND QUALIFIZIERUNGSBEDARFE BIS 2030 - Ein gemeinsames Lagebild der Partnerschaft für Fachkräfte, Berlin.

2.2 Gigatrend “Digitisation”

The so-called digital transformation is the overlying trend that dominates the debate on the future of industry, work, society etc. The digitalisation still has outstanding effects on the future of the creative industries. The implications on the organisation of the future as well as the mode of working in the future (“Work 4.0”) are tremendous.

The central directions of the development resp. The

consequences for work in the creative industries of the future in short are:

- Individualised products and services (“job lot 1”)
- Marketing via digital channels (social media)
- Distribution via online-shops / online-channels
- Routine-jobs are mostly automated
- Real-time information increases efficiency
- Logistic processes are automated
- Cloud-computing becomes usual
- High-demand on data privacy protection
- Big data is central – artificial intelligence, deep learning and data analytics deliver hints for (individualised) new products and services

Digitisation in the creative industry

A study on digitisation in then creative industry (in North-Rhine-Westfalia) (prognos 2016) highlights the following aspects:

- The options for new business for creative people increase with increasing digitalisation (interface: technology/content and interface content/community)
- The traditional value added chain is compemented by flexible cooperations
- Builtup of digital competences is seen as the key element for adaption to the digital change in the creative industry – they open the door for new business models

In his book Markus Klug[2] develops a “vision” of future organisations and the workforce in the digital age: In the light of digitalisation the organisation of the future is manifold – often you can‘t differentiate who belongs to the enterprise und who doesn‘t: agencies, consultants, external experts are involved in business processes – the company of the future will be organised as a „fluid“ organisation. Those organisations will permanently change their shape/profile (network-organisation, virtual organisation, hybrid organisation…)

The digitalisation creates 4 new modes of working:

1. Solopreneurs
2. High performance employee (Hochleistungsangestellter)
3. Salaried knowlege-worker (abhängig beschäftigter Wissensarbeiter)
4. Digital day-labouror (digitaler Tagelöhner) or clickworker

[2] Markus Klug: Morgen weiß ich mehr

On the whole the organisations of the future will strenghthen solopreneurs.

1. Solopreneur
   - Is a constitutive entrepreneur who builds up his enterprise all alone
   - Has the Objective to build up a scalable enterprise (resp. services) (that is the distinguishing feature of a solopreneur to a freelancer
   - Therefore works on his own projects (a freelancer works on projects of other persons).
   - often starts as a freelancer – until his projects and products generate enough income

   (a special case of a solopreneur is the so-called digital nomad).
2. High performance employee
   - Has an educational background above-average
   - Is highly specialised
   - Has a performance-oriented mode of working
   - Has a very good self-organisation
   - Possesses a high degree of „self-marketing“
   - Is sometimes oscillating between the status as an employee and an entrepreneur (note: Why does she/he work as salaried employee? She/he is "on the edge to entrepreneurship" – and from the perspective of the company it runs the risk of losing her/him as an important employee)
3. Salaried knowlege-worker
   - Is relatively good educated (graduated)
   - Has no resp. little specific competences / skills   (no USP)
4. Digital day-labouror or clickworker
   - Fulfils routine-functions
   - Is poorly paid

Implications for entrepreneurial competences

On the background of this vision of future organisations Klug also describes 10 potential skills for the digital future:

1. **Sense-Making**
   Ability to draw conclusions from a great many of data („big data“)
   (not only analytic-tools, but creative capabilities are needed)
2. **Social Intelligence**
   Ability to use empathy – scrutinise digital processes
3. **Novel and adaptive Thinking**
   Ability to think innovative in problem-solving (cross-industry innovation)
4. **Cross-Cultural Competency**
   Ability to adapt quickly to modified cultural frame conditions
   (e.g. cross-cultural teamwork)

5. **Computational Thinking**
   Ability to convert a multiplicity of data into abstract concepts
   (programming competences)
6. **New Media Literacy**
   Ability to work with new digital forms for expression (photos, video, texts, language…)
7. **Transdisciplinarity**
   Ability to think in greater /superior contexts
   (disestablish „silo mentality“)
8. **Design Mindset**
   Ability to think like a designer in problem solving (perspective of customer)
   („design thinking“)
9. **Cognitive Load Management**
   Ability to screen information much better to keep productive
10. **Virtual Collaboration**
    Ability to work in virtual working constallations
    (digital tools for communication, cloud-computing)

2.3 Megatrends

Megatrends mark middle- to long-term perspectives in society, economy, technology etc.

As part of our desk research we analysed 12 megatrends[3] and tried to identify impacts on the future of the creative industries.

The megatrends are: Silver Society / Demographic Change, Neo-ecology, Mobility, Urbanisation, Connectivity, Gender Shift / Diversity, Globalisation, New Work, Knowlege Society / New learning, Health, Individualisation, Safety and Security.

There are impacts both on new products and services as well as on the way to work and the structures of the companies of the future (note: they highly correspond with the gigatrend digitalisation).

The following chapters show the thinkable impact of the particular megatrend on future work and framework conditions for entrepreneurial activities as well as possible products or services.

The combination of two or even more megatrends will often deliver more interesting opportunities with a high potential for new business models, oproducts and services.

[3] We followed the taxonomy of the Zukunftsinstitut - http://www.zukunftsinstitut.de/dossier/megatrends/

2.3.1 Silver Society / Demographic Change

The Trend

The megatrend “Silver Society” characterises the worldwide demographic change towards an older society as a result of increasing life expectancies due to medical advances along with rising quality of life and standard of living all over the world.

In parallel, the traditional image of elderly people is replaced by new lifestyles. Instead of retiring, people engage voluntarily and participate in social activities. Furthermore, the “Silver Society” opens a huge market potential for the economy which can be developed by tailoring products and services especially for this group of customers.

Keywords: Downaging, ageless consuming, forever youngsters, e-health, ambient assisted living (AAL), silver potentials, health-style, universal design

Impact on work and organisation of the future

- (new) customer group
- High poetntial for indivudualised products and services
- Increase of entrepreneurs of a higher age
- Risk of skills shortage in single sectors of the creative industries
- Demand for knowledge transfer/covering of knowlegde when older employees retire

Impact on Subsectors

Print companies with integrated marketing solutions

- Individualised products/services: news(papers), mailing, delivering services

Packaging

- Package for elderly people – usability becomes criteria of highest priority
- Taylored package – including delivery services

Sign and Display

- Age-based size and type of lettering, integration of voice control (at point of sale)

Digital Marketing Agency

- Personalised marketing

Gaming

- Serious games – increase of motivation and compliance e.g. in health and elderly care

2.3.2 Neo-ecology

The Trend

The megatrend “Neo-ecology” is more than just nature conservation or opposition to major industry.

Sustainability and efficiency characterize every area and combine economy, ecology, and social responsibility. More and more consumers prefer “good” brands and companies that offer more than just a product. Ethical and ecological aspects of products and brands affect the perchance decision of a customer. These companies promise to make a contribution to the lives of their customers, employees, and society as a whole. Furthermore, regional supply chains gain in significance.

Keywords: Sustainable society, slow culture, maker movement, sharing economy, social business, fair trade, green tech, zero waste, urban farming, e-mobility

Impact on work and organisation of the future

- Increasing awareness of sustainabiltiy of products and services
- Demand for “meaningful” jobs (in particular young employees) – develop products/services and/or solve problems with social benefit

Impact on Subsectors

Print companies with integrated marketing solutions

- Increasing decrease of print products
- Use of eco-friendly materials
- Increasing substitution of print products e.g. books, magazines by digital solutions e.g. audio books, podcasts

Packaging

- Less packaging
- Re-usable packaging
- Use of new / eco-friendly materials

Sign and Display

- Increasing substitution of printed labels by display solutions e.g. in outlets
- New / eco-friendly materials

Digital Marketing Agency

- Increasing substitution of print advertising by digital marketing

Gaming

- Use of gamification to motivate people turning to a eco-friendly lifestyle

2.3.3 Mobility

The Trend

The megatrend “Mobility” characterises our today’s society that follows a flexible, mobile lifestyle where fixed places such as working offices and living spaces lose their importance. People expect a 24/7 mobility as the traditional 9-to-5 rhythm diminishes due to rising expectations and demands for products and services that are available around the clock.

However, the worldwide rising mobility demand, especially in emerging nations (BRIC, Next Eleven) causes greater stress to the environment which is why new, sustainable technologies need to be developed. New mobility-related products and business models such as car and bike sharing are gaining popularity.

Keywords: 24/7 society, car sharing, autonomous driving, third places, non-motorised traffic, e-mobility, bike-boom, mobile commerce, multi-modal mobility, soft mobility

Impact on work and organisation of the future

- Increase of number of people working in home-office to avoid mobility (third places)
- 24/7/365 avalability of products and services

Impact on Subsectors

Print companies with integrated marketing solutions

- Decrease of catalogues for e.g. automomobile, bikes etc.
- Decrease of user manuals for e.g. automomobile, bikes etc.
- Less pronted schedules, road-maps etc. are needed

Packaging

- New packages and services for “mobility of goods” (transport logistics) – compatible e.g. to autonomous cars and/or drones

Sign and Display

- With autonomous driving demand for signs will decrease (dramatically)
- Chance for displays – handling of vehicle, advertising, entertainment (interior equipment)

Digital Marketing Agency

- Digital marketing via displays in autonomous vehicles

Gaming

- Gamification for instruction how to use autonomous vehicles
- (Serious) gaming while driving by autonomous vehicles

2.3.4 Urbanisation

The Trend

Today, more than half of the world's population is living in urban settlements – and projections show that this development will continue. The megatrend "Urbanisation" characterises this development and the overall diffusion of the urban way of life. The future of cities is smart, green, sustainable, connected and worth living.

However, the dynamics of this trend, especially in emerging nations (BRIC, Next Eleven), lead to great issues such as lack of public transportation, infrastructure and living space along with environmental deficits. Furthermore, rural exodus leads to loss of services such as business enterprises, school and public transportation in rural areas due to decreasing purchasing power and lack of economic efficiency.

Keywords: Population growth, urban mining, urban farming, mega cities, global cities, rural exodus, shrinking cities, smart cities

Impact on work and organisation of the future

Impact on Subsectors

Print companies with integrated marketing solutions

Packaging

Sign and Display

Digital Marketing Agency

Gaming

2.3.5 Connectivity

The Trend

Everything is connected – The megatrend "Connectivity" names the movement to a world that is increasingly organised into networks. Whether online or off-line, everyone maintains a diverse array of connections to others and almost all are digitalised. Smart devices, which are connected and communicate with each other via the Internet, are also becoming increasingly commonplace. In every area of life, whether professional or personal, they are interconnected and smart.

Keywords: Industry 4.0, E-Commerce, Carsharing, Crowdfunding, Big Data, Selftracking, E-Health, Smart Devices, IoT, Social Networks

Impact on work and organisation of the future

- Important enabling technology for increase of platform economy
- Potential result: shift in entrepreneurship

Impact on Subsectors

Print companies with integrated marketing solutions

- Increase of cross-media products and services
- Social-media / networks become more and more important for distribution

Packaging

- Acceleration of smart packaging is possible
- Increase of interactive packaging (RFID)

Sign and Display

- Enabler for individual interaction at the point of sale

Digital Marketing Agency

- Enabler and accelerator for increase of mobile marketing

Gaming

- Enabler for gamification on mobile devices

2.3.6 Gender Shift / Diversity

The Trend

The megatrend “Gender Shift” represents the dissolution of traditional gender roles in the professional and personal life. While more women seek for leadership positions and work-life-balance models that allow to combine work and family responsibilities, men are claiming their right to spend time with their families. Changing role and career models will have great impact on society and economy.

Keywords: Superdaddys, work-life-blending, diversity, female shift, alternative families, new mommys

Impact on work and organisation of the future

- Increase of female entrepreneurship / entrepreneurs
- Significance of cross-cultural solutions increases
- New customer gruops – personalised products and services

Impact on Subsectors

Print companies with integrated marketing solutions

- Gender/diversity specific content and language

Packaging

- Gender/diversity specific packaging

Sign and Display

- Gender/diversity specific content and language

Digital Marketing Agency

- Gender/diversity specific content and language

Gaming

- Gender/diversity specific content and language

2.3.7 Globalisation

The Trend

The megatrend "Globalisation" characterizes the ongoing integration and internationalization of markets along with the growing effects on society, ranging from the educational system to the private sphere and relationships. Increasing exports and more involvement of emerging nations (BRIC, Next Eleven) in the world trade result in an economic growth which boosts the development of a new middle class in these countries.

However, the economic dimension is just one part of it: Boundaries between different cultures are becoming more fluid and various ways of living and consumption are blended.

Keywords: Global cities, On-demand business, fair trade, rising Africa, China's rising global power, migration, glocalisation

Impact on work and organisation of the future

- Markets becomes more international – risk of increasing competition
- New customer groups
- (cross-)cultural sensitivity grows
- Teams in projects are more and more multi-cultural

Impact on Subsectors

Print companies with integrated marketing solutions

- New, cultural-specific content / products and services

Packaging

- Individualised packaging (e.g. food packaging: different cultural norms, standards, and customs have to be considered)

Sign and Display

- Displays enable multi-language information, messages, instructions

Digital Marketing Agency

- Individualised marketing campaigns need deep knowledge of cultural characteristics

Gaming

- Games in a variety of languages, but also taylored to the cultural characteristics

2.3.8 New Work

The Trend

The megatrend “New Work” is a result of the radical changes that society and economy are undergoing. It characterises the merging of work and leisure due to work flexibilisation and the new value of human beings in an automated, digitalised and globalised working environment.

The transformation from an industrial to a knowledge society, based on creating immaterial value, will result in changing corporate structures and employer behaviour. The workforce in areas such as service, information, and creativity will become a key factor for the global economy. Processes, experience, and ideas will become increasingly important.

Keywords: Work-design, outsourcing society, start-up culture, silver potentials, work-life-blending, diversity, female shift, co-working, social business, collaboration, open innovation, urban manufacturing

Impact on work and organisation of the future

- Supportive factor for entrepreneurship in all sub-sectors
- More independance can have positive impact on female entrepreneurs

- Challenge for employers:
    - Recruiting may become more difficult
    - Organisation of work becomes more complex
    - Incentives gain importance for retention management

Impact on Subsectors

Print companies with integrated marketing solutions

Packaging

Sign and Display

Digital Marketing Agency

Gaming

2.3.9 Culture of knowledge (Knowlege Society / New learning)

The Trend

Scientia potentia est – knowledge is power and in the future more human beings will be able have access to it considering the achievements of the digitalisation. The megatrend „culture of knowledge" describes the change from an industrial to a knowledgeable society where the "culture of knowledge" decides whether individuals, companies and political economies are well prepared for the future.

Keywords: Open Science, Open Innovation, Predictive Analytics, Collaborations, Life-Long-Learning, Tutorial-Learning

Impact on work and organisation of the future

- Increasing interest in learning
- Increasing request for information
- Chance for further market segmentation

Impact on Subsectors

Print companies with integrated marketing solutions

- Option for new products, e.g. special interest magazines - in combinaltion with new marketing solutions

Packaging

- Knowledge-transfer via packaging

Sign and Display

- Potential for learning on-site
- Interative learning (display – mobile device)

Digital Marketing Agency

Gaming

- Market for serious games increases
- Spectrum of target groups becomes broader
- B2B-market grows (private companies, schools, universities)
- Growing B2C-market arises and grows

2.3.10 Health-Style

The Trend

Health is no longer merely the absence of illness, but is a lifestyle in its own right. Working on the body, mind and soul with the aim of achieving greater vitality has become a philosophy of its own. Healthy living today mainly means an optimised ability to perform and compete along with gaining a feeling of well-being.

Thanks to digitalisation, Health-Style has become an omnipresent companion to our daily lives. Health assistants are moving into our homes and devices and enable independent monitoring of our own vital sings. However, the democratisation of knowledge and digital health assistants will impact on the entire health system. Patients will become more confident and autonomous, while doctors will be confronted with demands for more transparency and self-determination, and the perception of health experts will shift from “gods in white” to “service providers in white”.

Keywords: Sportivity, detoxing complementary medicine, quality of live, self-tracking, e-health, ambient assisted living (AAL), slow culture, work-life-blending, corporate health, foodies

Impact on work and organisation of the future

- Increase of health (pharmaceutical) and wellness products and services
- Awareness of employees and entrepreneurs for health and work-life-blending increases

Impact on Subsectors

Print companies with integrated marketing solutions

- Potential for new products, content, formats

Packaging

- Personalised pharmaceutical products

Sign and Display

- Increasing potential for information on health and/or instruction for use of wellness products at point of sale

Digital Marketing Agency

Gaming

- Gamification in healthcare and care of elderly people to improve motovation and support compliance and therapy plans
- Serious games for learning about a healthy lifestyle

2.3.11 Individualisation

The Trend

The megatrend “Individualisation” establishes a new culture of choice. For more than 100 years, society has been characterised by the drive toward greater autonomy and self-determination together with the decline of classical hierarchy models. People shape and display their identity and personality through their consumption and the search for new connections. Important life decisions are postponed in order to retain as many options as possible for as long as possible. Thus, traditional lifestyles are changing and the image of a traditional family is replaced by freely chosen associations such as friends or topic-based communities.

The economy can use the potential of this megatrend by developing personalised products and services based on modular concepts.

Keywords: Single society, diversity, liquid youth, alternative families, multi-graphy, identity management, quality of life

Impact on work and organisation of the future

- Increase of entrepreneurs
- New customer groups
- New market niches
- Increasing demand for “order quantity 1”

Impact on Subsectors

Print companies with integrated marketing solutions

- Personalised content

Packaging

- Personalised packaging
- Luxury packaging

Sign and Display

- Individualised address at point of sale via interaction display / mobile device

Digital Marketing Agency

- Personalised channels and content

Gaming

- Gamification for individualised learning and motivation

2.3.12 Safety and Security

The Trend

The megatrend "Safety & Security" is a result of the ongoing digitalisation in every area of life and the risks that come with it. While government institutions retreat from its provision, corporations and individuals take increasing responsibility. Finally, every human being needs to deal with the risks that come along with the benefits of digital products and services.

Keywords: Super-safe society, trust technology, digital reputation, privacy, cybercrime, big data, industry 4.0

Impact on work and organisation of the future

- Increasing awareness of data-security
- Rising demand for secure solutions in any (digital) market

Impact on Subsectors

Print companies with integrated marketing solutions

- Source for collecting data for manifold analyses and follow-up services

Packaging

- Increase in demand for RFID – product labeling, also in industrial production processes

Sign and Display

- Safety instructions on-site

Digital Marketing Agency

- Source for tremendous amount of data ("big data") for manifold analyses and follow-up services (B2B and B2C)

Gaming

- Increasing importance of data privacy

2.3.13 Implications for entrepreneurial competences

In short: the developments summarized by the so-called megatrends offer manifold opportunities for new, individualised products and services, customers and market segments. This development tend to forward entrepreneurship in hge creative industries and beyond.

With entrepreneurial competences in mind the megatrends and their (possible) impact on business opportunities some skills become important for entrepreneurship.

Entrepreneurs must be able to analyse trends and future developments in order to identify consequences for their business. That implies

- To know and be able to use different sources of information on trends and developments (e.g. trade-organisations, specialised consultants)
- To know and be able to use basic methods and tools of “impact assessment”
- To be able to think and plan from a customer / market perspective
- To be able to identify chances as well as risks
- To be able to think in the “philosophy” of business models

2.4 Trends in innovation(management) and entrepreneurship

Also as a result of the increasing digitalisation and the development (and avalabilty) of enabling technologies like platforms the framework conditions of entrepreneurship and innovation management have highly changed. On the influence of the developments described above some new approaches in organisational development have been developed in recent years.

In the recent years a lot of changing has taken place in research as well as in practise in the topics innovation/innovation management, entrepreneurship and organisational change. These changes are in close connection with the digital transformation resp. the increase of digital tools as kind of enabling technologies to implement new forms to conduct innovation processes, to design cooperation or to organise work of individuals.[4]

Innovation and innovation management

The traditional understanding of innovations being created in a systematic sequential process that can be planned and organised from ideation to successful diffusion on the market is still alive. But the underlying strategy of innovation integrating customers and suppliers into the innovation process via approaches like “lead-user-concept” or “open-innovation” lead to so-called incremental innovations (Janszky 2013: 173).

In the age of digitisation with its high speed of change the strategic assumptions have changed basically (Rogers 2016: ##):

From	To
Decisions made based on intuition and seniority	Decisions made based on testing and validating
Testing ideas is expensive, slow, and difficult	Testing ideas is cheap, fast, and easy
Experiments conducted infrequently, by experts	Experiments conducted constantly, by everyone
Challenge of innovation ist to find the right solution	Challenge of innovation is to solve the right problem
Failure is avoided at all cost	Failures are learned from, early and cheaply
Focus is on the ‘finished’ product	Focus is on minimum viable prototypes and iteration after launch

Fig. #: Changes in strategic assuptions from the analog to thgen digital age
(Source: Rogers 2016: #)

[4] An in-depth investigation of these topics would have gone beyond the scope of the desk research in the Thrive!-project. Therefore in this report the general developments and some central trends in these subject areas are described.

The current discussion on innovation is dominated by business model innovations, that means: the economic success does no longer primarily depend on new products, new services or new processes, but on new business models. Innovation is not the result of technological development and market-/customer analyses, but of a new definition of the rules of the game in nearly all branches (Janszky 2013: 173f.). The protagonists of this (r)evolution are mostly entrepreneurs and startups ("rulebreakers") who push their ideas outside the structures of established enterprises. This development ist summed up as "disrutive innovation" – a term that becomes more and more common.

The futurologist Janszky predicts that from the year 2020 this development – innovation is driven by start-ups - will change for three reasons (Janzsky 2013: 174f.):

1. It will be easier to copy innovations. Startups will lose their benefit to be able to develop and test new ideas because celerity is essential for survival in competition.
2. Established concerns learn to act in line with and integrate the mindset of startups into their structures. They will establish "rulebreaker-teams" that can operate independent from the rigid structures of the concern – without hierarchies and strict duty to report.
3. The kind of innovation: business model innovations are often quite close to the strenghts of big companies.

As a consequence Janszky estimates that in the (near) future rulebreakers won't necessarily promote their visions by founding a startup. Before founding their own business they will be hired (bought) by concerns.

Meanwhile this development – illustrated by Janszky in 2013 – has widely become true: the former startups like Airbnb, Amazon, Google, Uber on the one hand have disturbed well established branches and on the other hand these companies have expanded to concerns with thousands of employees (without losing their innovative power). Another example are the established enterprises in the automotive industry. Because the game-changing innovations in e-mobility and autonomous driving were mostly made by startups or companies outside the automotive industry they more and more cooperate with innovative startups – often in the silicon valley.

The consequences of the developments and prognoses described above are manifold:

- The emerging role of business model innovations opens new opportunities for entrepreneurs and startups.
- The new strategic approach of many established concerns opens new opprtunities for employees with entrepreneurial spirit.
- On the other hand enterprises that want to hire employees with entrepreneurial ambitions and innovative spirit are faced with a new challenge: the decision of (young) solopreneurs is based on the following criteria (Janszky 2013: 177)
    - Is the job / the project a real challenge? Is it intellectually stimulating?
    - Is the project meaningful? Is it a problem worth solving?
    - Will I work with interesting people? Are there nice collegues?

Entrepreneurship

There has also been a shift in the understanding of entrepreneurship in the last years. One of the well-known protagonists of a new type of entrepreneurship is the German professor and entrepreneur Günter Faltin.[5] His main thesis is that an entrepreneur doesn't have to be an "allrounder" who knows everything around the management of a business. Tasks like communication, logistics, accounting etc. can be delegated to external specialists. Following Faltin the competences of an entrepreneur are different from that (see below).

The starting point of Faltin's critique is the traditional understanding of entrepreneurship – and as a result the "typical" content in entrepreneurship education and training and also the structure of the support system for entrepreneurs (consultancy etc.).

The traditional understanding of the requirements for an entrepreneur focuses on three aspects: capital procurement, management and concept development (see fig. #):

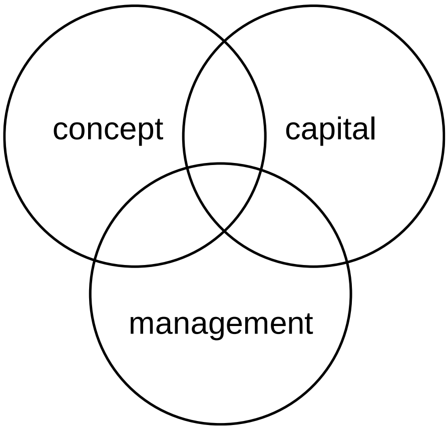

Fig. #: Traditional understanding of entrepreneurship/requirements for entrepreneurs (source: Faltin 2017: 54).

The traditional competence profile of an entrepreneur includes the following aspects and subjects:

- Accounting
- Balancing of accounts
- Controlling
- Law (work/labour, taxes etc.)
- Management and organisation
- Leadership
- Marketing and distribution
- Communication
- Finance
- Public relations
- Logistics
- Professionell experience

[5] Günter Faltin: Kopf schlägt Kapital

Faltin points out two aspects of this approch that do not meet reality:

- The formula
  "patent + knowledge in business administration = successful foundation/entrepreneur" is part of what he calls the "european paradox" (Faltin 2015: 87f.) and this understanding doesn't apply to the modern code of practice in entrepreneurship.
- Only very few persons have the compentences and are able to raise capital, manage a company and develop a stable business concept (see fig. #).

In his approach he puts the business concept in the center of the foundation of a company – and the (administrative) functions mentioned above are organised by cooperations. Inventions, results of research and development, and/or patents are only "raw-material". The business concept is the necessary link between this raw-material and the ecomonic success on the market. Faltin names it "Entrepreneurial Design" (see fig. #):

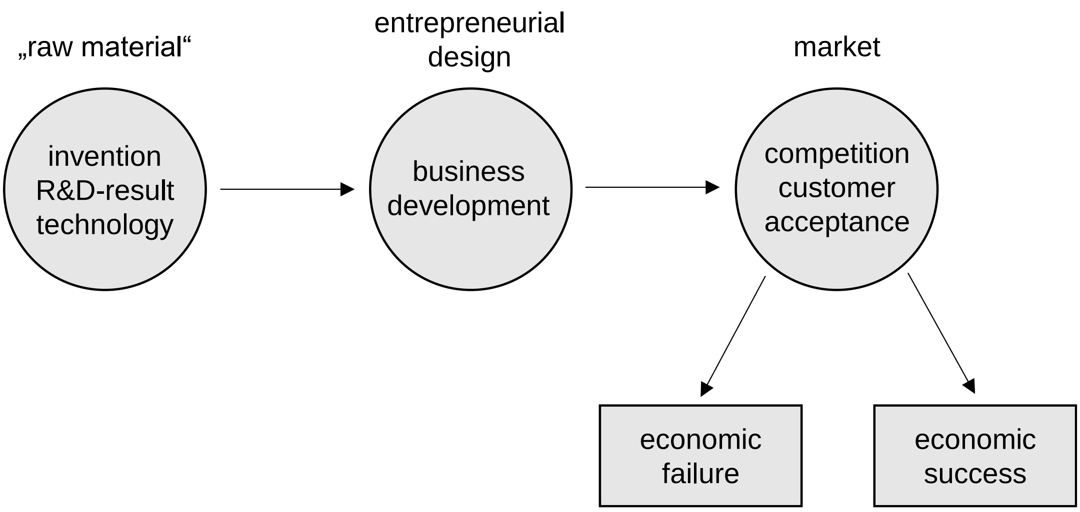

Fig. #: Success-factors for startups
(source: Faltin 2017: 57)

To be successful the entrepreneurial design has to be "user-oriented" and must follow some principles: simplicity, scareability, "white-label"-solution, minimize risks, experimental pre-start, intelligent prototyping.

Faltin calls his approch "foundation in modules/components". In this mindset the entrepreneur is something like a moderator of a process who coordinates and orchestrates the different duties in connection with running a business successfully.

The core competences of an entrepreneur are close related to the business concept – the modern profile of qualifications/vcompetences/skills of a successful entrepreneur covers the ability (Faltin 2017:

- to identify trends and technological developments early
- to develop an innovative (business) concept
- to implement the concept
- to inspire the employees (and business partners) of the concept
- to adapt the concept to changing framework conditions

There are some other authors like Steve Blank (Blank 2014) or Eric Ries (Ries 2013) who also criticise the traditional understanding of entrepreneurship and evaluate it as widely unsuitable in the digital age. They are in line with Faltin and have also developed new approches resp. methods for entrepreneurship: Lean-Startup (Ries) and Customer Development (Blank).

- Lean-Startup (Ries 2013):
  The method lean-startup aims at minimising the risk to fail. It focuses on a feedback-loop process called "Build-Measure-Learn-Cycle". Central element of the method is to define and develop a prototype. This prototype is tested in the next step – does it meet customer needs? The method is built up of five principles:
  1. Entrepreneurs can be found anywhere:
     Startup is a kind of organisation with the goal to create new products and services under extremely insecure circumstances. Entrepreneurs work in startups as well as inside an established enterprise.
  2. Entrepreneurship is management:
     A startup is an organisation that needs leadership- competences that are taylored to the context of extreme uncertainty.
  3. Validated learning processes:
     Central object of a startup is to learn how to develop a stable business concept.
  4. Build – measure – learn:
     the basic activity of a startup is to convert ideas into products, measure the reaction/acceptance of then customers and learn whether to keep on track or to modify the products and/or business model.
  5. Balancing the innovation:
     Successful startup activities also include "boring" administrative stuff: define milestones, measure success, define priorities. This should encourage the personal responsibility of the entrepreneurs.

- Customer Development Blank 2014)
  This method is a framework for start-ups with 4 steps that support to win (new) customers, develop and validate innovative products. It has high relevance for the lean-startup method.
  1. Customer Discovery
     In this phase experiments that can validate assumptions to a (new) business model are developed. Interviews with potential customers are conducted – the results of the interviews are evaluated.
  2. Customer Validation:
     This step serves to test the scalability of the business model. Price-models, acquisition of customers and distributive channels are tested.
  3. Customer Creation:
     In this phase the acqusition of customers is central to build up a sustainable basis of users.

4. Company Building:
   The “typical” organisational strucutures are built up (e.g. marketing, distribution) – the startup transforms into a “real” company.

In close connection with the approches described methods like

- Business model generation (CANVAS) and
- Design Thinking

are important competences for entrepreneurs.

Apart from that the basic knowledge in business adminitration is still relevant in entrepreneurship – but there are some fundamental changes in the “core” issues of business administration. The developments that can be summarised with the term “crowd-#” (Pechlaner/Poppe: Crowd Entrepreneurship 2017) have a profound impact on business knowledge. Especially funding has changed fundamentally (“crowdfunding”).

The catalogue of basic skills in business administration for entrepreneurs has to be enriched by topics as crowd-funding, social-media, new organisational concepts, new leadership concepts, (virtual) cooperation etc.

3. Target groups – characteristics and specific challenges

Target groups of the Thrive!-project are young entrepreneurs / start-ups (companies younger than 5 years), employees with entrepreneurial spirit / companies with growth potential (older than 5 years) and female entrepreneurs.

3.1 Young entrepreneurs

Several root cause analyses on the failure of start-ups as well as of older companies have been conducted over the last 20 years and a lot of typologies of "typical" life-cycle-models and crises of growth have been developed on this basis.

A current dissertation of Michael Neumann[6] exemplifies 4 "typical" crises as cause for failure based on specific liabilities:

- liabilities of newness
- liabilities of smallness
- liabilities of adolescence
- liabilities of obsolescence

The first three items can predominantly be found at start-ups, because they often face challenges like lack of ressources or capabilities, missing acceptance by customers, banks etc. or mistakes made by the management (e.g. because of missing business knowledge: „The dot.com entrepreneur or team often lacks the skills required to get the business off the ground" (see Kubr 2002: 343).

Neumann shows that failure is not only the result of directly visible causes of crisis or insolvency. He claims to have a sophisticated look at the whole lifecyle of the company.[7] Thus you can identify the many different reasons for the failure.

Implications for entrepreneurial competences

Young entrepreneurs need

- in many cases more profound skills in (fundamental) business knowlegde and skills
- specific management tools for dealing with crises (crisis management)
- a functional early-warning system

and on the level of personal competences

- a good selfmanagement
- resilience / health management

Young entrepreneurs often work as micropreneurs or solopreneurs – especially when they start their business. Therefore they also need skills in

- using platforms to gain mandates (e.g. specialist working as a freelancer)

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6 Michael Neumann (2016): „Wie Start-ups scheitern. Betrachtung der Ursachen und Verläufe des Scheiterns junger Unternehmen aus einer attributionstheoretischen Perspektive."

7 Michael Neumann (2016): „Wie Start-ups scheitern. Betrachtung der Ursachen und Verläufe des Scheiterns junger Unternehmen aus einer attributionstheoretischen Perspektive." p. 48, 377ff.).

- teamworking – teams with members of different cultures and disciplines
- networking, e.g. to support a continuous occupation.
- a good project-management to coordinate different/parallel jobs.

3.2 Employees with entrepreneurial spirit / companies with growth potential

The remarks on specific liabilities in 3.1 are effectual for companies with growth potential as well. But there are some specific aspects concerning the target group “employees with entrepreneurial spirit” working in companies”. In contrast to entrepreneurs – who work independant (on their own responsibility) their challenge is to successfully execute innovation projects (for new products, services or to explore new customer groups or markets).

They have to deal with

- The coordination of – in most of the cases - very complex projects / structures
- A lot of different / diverse members in the project-team – internal and external partners. The external partners can be companies and/or solopreneurs / freelancers (often with their own aims)
- The embeddedness in the - often “old-fashioned” - structures of the company

Implications for entrepreneurial competences

Members of this target group need

- Sophisticated skills in project-management (with regard to the digitalisation especially with modern concepts in project-management like agile projectmanagement, scrum etc.)
- Skills in communication
- Competences in leadership

Bogott et al.[8] deliver some practical hints for the competences of employees in startups – that can also be used for employees in companies with growth potential:

- Ability to communicate
- Interpersonal skills
- Ability to work under pressure
- Committment
- Resiliance
- Innovativeness
- Adaptiveness / flexibility
- Time- and self-management (ability to set goals, ablitiy to priotise etc.)
- Ability to work in teams
- Cross-cultural competences
- Networking

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8 Bogott et al.: Im Startup die Welt gestalten Wie Jobs in der Gründerszene funktionieren.

In the setting “employees with entrepreneurial ambitions in companies with growth potential” the senior management takes an important role to support the innovation-/project-managers.

In his analysis Eder[9] shows what the management can do to facilitate the process:

- Ability to foster organisational learning
- Ability to establish confidence (people work together in flexible teams for a short time)
- Ability to create an atmosphere to generate new ideas / “start-up-culture”:
    - Culture of “trial-and-error”
    - Learning processes
    - Creativity
    - Working without strict rules
    - Minimize routines
    - Disconnect the team from the “core-organization”
    - Allow employees to work on their own projects / to foster their own ideas
- Skills in communication and negotiation
- Being cross-linked inside and outside the orgnisation (networking)

3.3 Female entrepreneurs

There is only little information about specific “needs” for female entrepreneurs.

A central reason that they are highly underrepresented related to male entrepreneurs are (see Global Entrepreneurship Monitor) is that young women have less favourable perceptions with regard to entrepreneurial competences compared to young men:

- Lacking self-efficacy
- Minor access to entrepreneurial role models
- Less confidence in their ability to run a business

Shmailan (2016) gives an overview of “typical” characteristics of male and female entrepreneurs in general based on a reserach of the relevant literature. The listed items in the table below cover five aspects: risk tolerance, financing, management, motivation and network.

9 Eder (2016): Digitale Evolution Wie die digitalisierte Ökonomie unser Leben, Arbeiten und Miteinander verändern wird

Male Entrepreneurs	Female Entrepreneurs
General characteristics	
Decision Making easy	Difficulty in making decisions
Business focused on economy and cost	Business focused on making social contribution and quality
Willing to take financial risk	More conservative when it comes to financial risk
Task oriented managers	Focus on good relationships with employees
Business manufacturing and construction	Business small retail and service orientation
Risk tolerance	
Less concerned about hazards in business ownership	More concerned about hazards in business ownership
Feel have enough information	Require more detailed information
Require less social support to start business	Require social support to start business
Willing to fail in business	Less willing to fail in business
Propensity for risk in general	Risk adverse generally
Financing	
More capital	Less capital
More debt	Low debt
	A lack of track record for financing
Bank trust male	Bank not trust female
Easy to access to capital	Not easy to access to capital
Motivation	
Externally focused	Autonomous
Strong initiative	More positive
	Good common sense
	Think critically
	Very aggressive
	Own boss
Earning more money	Achieve a sense of accomplishment
Previous experience	
Management	
Logical thinkers	Intuitive thinkers
Oriented leaders	Communicative and expressive behaviours
	Communications skills are excellent
	Understand the needs of their employees
Grow their businesses	Grow their businesses
More aggressive when it comes to expansion	Cautious and conservative about expansion
Networking	
Large network	Small network
Organisations	Familiy and friend
More access to network	Less access to network

Table #: characteristics of male and female entrepreneurs
(Source: Shmailan 2016, p.3ff.)

Some female chracteristics fit well with the requirements of the future, e.g.

- their more democratical oriented resp. participative management style matches the needs of sustainable organisations,
- their business focus on making contribution to society and maintaining quality meets the expectations of young motivated employees and/or employees with entrepreneurial ambitions concerning a “meaningful” job.

These competences tend to support the engagement of female entrepreneurs in the creative industries of the future in a positive way.

On the other hand there is a specific demand for male entrepreneurs to develop these skills.

Implications for entrepreneurial competences

Some of the barriers can not or hardly be resolved by education or training (e.g. access to networks dominated by men or the confidence of banks in the entrepreneurial capabilities of women). To support the networking activities (and also the motivation) of female entrepreneurs there are initiatives e.g. like "FRAUEN unternehmen" of the German Federal Ministry for Education and Research, the Federal Ministry for Family, Senior Citizens, Women and Youth and the Federal Ministry of Economy and Technology (http://www.existenzgruenderinnen.de/EN/Home/home_node.html).

But from the findings illustrated above there are also some hints on specific competences for female entrepreneurs that could be developed via education and training:

- improve the willingness/ability to take financial risks, e.g. negatiation with VC and banks
- support decision making, e.g. by methods and tools that accelerate the process of decision making.
- work-life-balancing/-blending.

4. “Creative industries of the future” – a new ecosystem

Innovation and entrepreneurship in the creative industries of the future will take place under fundamentally different framework conditions than today.

A central finding of the desk research is that the opportunities for entrepreneurship and successful innovations will increase corresponding to the developments under the roof of the digital transformation. Most of the megatrends offer manifold options for new products and services. Digital tools like platforms support people with entrepreneurial spirit to successfully turn their ideas and business models to the market.

On the other hand working conditions will change dramatically. Well educated people who constantly improve their competences and keep them up to date have very good perspectives for a successful career. People with lower qualifications who execute routine jobs are poorly paid and face the hazard that their job is taken over by robots and they will loose their job.

Figure # illustrates under recourse of the descriptions in the text above (especial chapter #) the central structures of the ecosystem “Creative industries of the future”:

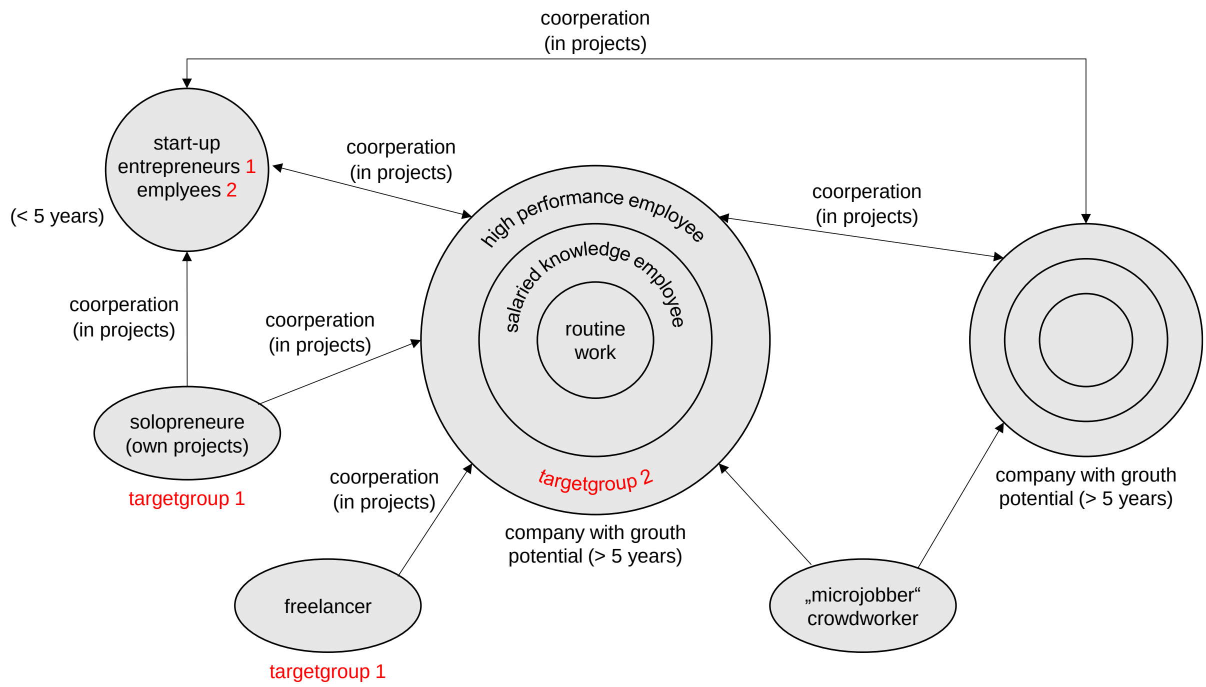

Fig. #: Ecosystem “Creative industries of the future”

There are different actors in the system that work together in differing constellations:

- A “typical” company consists of high performance employees that mainly work on innovations and new business models. They have a high degree of entrepreneurial spirit and often tend to found their own enterprise. Companies must engage in employee retention by setting appropriate incentives.
  The second group are the salaried knowledge employees. They have an over-average qualification and conduct challenging tasks in business administration.

The routine jobs are executed by “microjobbers” (often crowdworkers – also called: (digital) day-laborours).
In the context of their innovation activities these companies cooperate with other companies, startups, freelancers, and/or solopreneurs.

- Startups are small and medium-sized enterprises – often younger than 5 years. They conduct their own innovation projects and/or cooperate with other companies and/or freelencers and/or solopreneurs.
- Solopreneurs are often willing to found their own company and therefore work on their own projects, but they also sell their expertise to companies – often on a day-rate-basis.
- Freelancers are similar to solopreneurs. They also work alone and sell their specialised expertise to companies where they participate in innovative projects. In contrast to solopreneurs they have no ambitions to found their own enterprise.

The environment for entrepreneurship is very dynamic and volatile. Entrepreneurs and employees with entrepreneurial spirit must have the ability to successfully work in the manifold changing constellations of teams and projectpartners – often in parallel projects, long-term and short-term...

With the Thrive!-project in mind the entrepreneurs in startups, the solopreneurs and the freelancers belong to the target group “young entrepreneurs” and the employees in startups and the high performance employees in companies with growth potential form the second target group. The target group “female entrepreneurs” can be found in both categories.

5. Future company profiles in the creative industry

In this chapter we try to paint a picture of future company profiles in the creative industry. This is done for the five subsectors that are selected for the Thrive!-project:

- Print companies with integrated marketing solutions
- Packaging
- Sign and display
- Digital Marketing Agency
- Gaming

The results of the desk research are merged in a scenario 2026 that describes ONE imaginable situation.

The scenario is followed by a CANVAS. The CANVAS shows the broad variety of thinkable company profiles that arise when combining the different elements of the business model CANVAS – and by this emphasises that there won't be "the one and only" company profile in the sector.

And: because of the increasing convergence not only of technologies but also of industries, markets etc. in 2026 maybe there won't be the variable subsectors in the creative industry...

Every chapter contains also information on the implications for entrepreneurial competences.

5.1 Print companies with integrated marketing solutions

Scenario 2026

The printing industry with integrated marketing solutions as a subarea of the creative industries has developed considerably in the recent years, especially in the course of the digital transformation. This trend is leading to an economic upswing and far-reaching changes within the industry.

From the business customer side, to a large extent individualized and personalized contents are demanded in both analogue and digital marketing strategies. The variety of different marketing solutions consists of, for example, elaborately high-quality printed products as well as programmed mobile applications, landing pages or banner advertisements. Another trend that is further intensifying is a cross media marketing mix in which, for example, PURLs are integrated into print products.

Business customers also request full-service offers from print service providers for their individual marketing solutions. These include factors such as delivery time (just-in-time), high quality and cost-optimized prices, which are an increasingly important aspect for customers. At the same time, business customers expect cost-effective alternatives for storing their records (e.g., end user data). Data-driven marketing solutions coupled with visual effects for end-users and control over business customers have also become a very important customer need.

The distribution interface between print service providers and business customers is almost exclusively online based on platforms or alternatively on customer-owned ERP-systems. At the same time, sales staff are still being hired for long-standing key accounts in order to enable intensive communication on a personal level (or on-site at the customer, if applicable).

On the one hand, business customers include retailers who demand digitized marketing strategies in order to survive in the mass market of large online mail order companies. On the other hand, business customers belong on the craft, which also pursue the objective to establish themselves through innovative marketing strategies in the mass market. Customers from niche markets, as well as explicitly end consumers, are increasingly becoming the focus of printing companies with very individual demands for specially tailored marketing solutions.

Small print companies, however, rely on selected, competent partners to build a network in order to jointly meet customer needs for analog and digital marketing strategies. As a result, printing companies are forced, as needed, to buy skills for the needs of their customers. Since a multitude of different marketing strategies and solutions in combination with creative services seem possible for business customers, print service providers demand additional high levels of consulting expertise. At the same time, it is necessary for independent print service providers to be able to provide data security expertise in order to provide customers with the necessary confidence to manage their data records. Creating the marketing mix of digital and analogue solutions requires print service providers to be able to flexibly control the corporate network (e.g. logistics processes) with their embedded partners. Decisive are also design and graphics processes in order to be able to present the agreed performance to the customer, which is the result of intensive marketing and communication consulting on the part of the print service provider. Another important activity is the market analysis for self-employed print service providers. Information must be collected and filtered in real time. Such big-data applications enable an early viewing of trends and ultimately lead to competitive advantages over the competition. The largest costs for print service providers are distributed among the network partners, as customers demand a wide range of products and services. These include e.g. other print service providers, IT experts for programming or even advertising agencies for the creation of media. Another significant part of the costs falls on the legal advice in order to gain confidence in the customer. Finally, there are also costs for high-quality and innovative substrates and printing inks.

- The big online print companies, as leading companies in the printing industry, have a great financial scope and have adopted the market for customized marketing solutions for customers in the B2C sector. Employees of these "big players" in the market are qualified professionals from the field of digital marketing strategies with information technology, design / graphic and strategic marketing skills. The market segment of digital marketing solutions for customers is highly competitive, however, the large companies assert themselves in the market and are in many parts leading providers, which is also due to the low price structure.
- The group of medium and small printing companies in the market in the range of 5 - 25 employees have great difficulties to offer their customers acceptable digital marketing solutions. In many cases, their strategy is based on cooperating with advertising agencies in order to successfully expand their business model. The focus of small and medium-sized printers is more on skilled workers with a lot of practical work experience in the printing industry and comprehensive information technology skills. However, this demanded IT knowledge ostensibly serves the administration and control of networked workflow technology as well as processes in the production area. Required skills for offering digital marketing solutions are "bought" in advertising agencies for these reasons. Without entering into cooperation partnerships with professional advertising agencies, this group of printing companies will not be able to successfully assert their already small market share even in niche areas.
- The last group of self-employed specialists with specialized competencies partially acquires their own assignments and offers their "know how" as freelancers to the printing companies described above. The competence portfolio of the independent subject matter experts includes a high degree of IT expertise, which enables them to carry out extensive programming work for digital, customer-specific marketing solutions. Furthermore, they have a high innovative spirit and graphic and design skills to give the marketing solutions a unique selling point for their customers. In order to be able to communicate their competences to companies in the private sector, independent experts must also have extensive industry knowledge, a high level of customer orientation and be able to cope especially with time pressure. It is a great challenge for the self-employed to work within their work-life balance e.g. reconcile work and family. Support for the self-employed is that despite time pressure, working hours can be divided more flexibly. Furthermore, they can benefit from the advantage of being able to carry out their work tasks in a flexible, location-independent manner and do not have to show a regular presence in companies.

Implications for entrepreneurial competences

For the Subsector “print digital marketing”, it is necessary that entrepreneurs will have a deep understanding of Big Data. Data-driven marketing systems will be established in every printing company and will be rely on a wealth of personal data for successful marketing campaigns. For this purpose, future specialists also demand knowledge of an automated read-out data algorithms. Technical understanding of the automation and networking of machinery will be an important aspect to enable the production of edition 1. This also requires competences about upstream and downstream production processes of the machinery. Owning personal data for marketing purposes further requires data security competencies to protect the end user's privacy and keep it anonymous.

<table>
<tr><th>Key Partners</th><th>Key Activities</th><th>Value Propositions</th><th>Customer Relationships</th><th>Customer Segments</th></tr>
<tr>
<td rowspan="3">Different print companies to be able to offer a large product range

IT-Experts to program content

Logistics partners

Legal advice

Certification institute(s) on secured printing technology, information security</td>
<td>Management to control the network
designer, statistics, logistics, market analyser, consultancy and communication

Capture and filter information and network activities in real time to track trends, enjoy competitive advantage (big data applications)</td>
<td rowspan="3">Quality provider of personalised / individualised content for end users:
• Analog marketing solutions (e.g. high-quality lacquer-finished printed products on novel substrates)
⇨ Optical / haptic properties
• Digital marketing solutions (e.g. programmed mobile applications; landingpages, banner advertisement)
⇨ User friendliness, obtrusiveness
• Analog / digital marketing solutions (e.g. included media in printed products like printed QR-Codes which lead to PURLs)

Media response tracking of end users

Offer speed and high quality specifications as a service (to be one stop-shop)

Multichannel / Crossmedia communication mix

(Full-) Service offers regarding delivery time, quality and price

Carry out customized cross-media and personalized campaigns

Trustworthy handling of sensitive customer data

Alternatives for expensive data storage, display and visual effects, monitoring, toys, etc.</td>
<td>Interaction takes place for repeat orders online and anonymously via automated service decisions

Account manager offers customers direct, individually personal support

24/7 accessibility for customers via online platform
(live-chat programs, Whats App, Social Media)</td>
<td rowspan="3">Business to Business (B2B):
• Retailer (innovative, digitized marketing strategies to withstand in the mass market of major online-mail order companies)
• Serving potential customers from hitherto unknown niche markets (printed electronics)
• Handicraft (innovative, digitized marketing strategies to establish themselves in the mass online market)

Business to Consumer (B2C):
• new niche markets are opening up, such as textile printing (industry printing)</td>
</tr>
<tr><th>Key Resources</th><th>Channels</th></tr>
<tr>
<td>Establishment of a network to implement analogy and digital marketing solutions involving selected partners

Smart networking of machine park with digitized IT (improved workflow)

high consulting competence for the broad product range

Competence for creative service provide

Competences in the field of data security / network security</td>
<td>Digital online platforms
(easy, clear and user-friendly)

Outlet location
(to be closer at the customer)

Sales reps
(to communicate on personal level)

Direct interfaces to business customers (connection to customer ERP systems)</td>
</tr>
<tr><th colspan="2">Cost Structure</th><th colspan="3">Revenue Streams</th></tr>
<tr>
<td colspan="2">Advertising agencies and IT service providers who create the media to be included in print products
high cost share for innovative, high-quality substrates and printing inks</td>
<td colspan="3">Fee consultancy for purpose of defining a marketing strategy
Cross-selling approach (offering additional services to the requested print product)
Differentiated service levels in different price segments</td>
</tr>
</table>

5.2 Packaging companies

Scenario 2026

The packaging sector has evolved considerably as a sub-sector of the creative industry from an economic point of view. Innovative and intelligent packaging solutions have enabled the industry to continue to develop significantly in the last 10 years and to further expand its position within the creative industries.

Typical customer segments in the packaging sector are business customers from the pharmaceutical, food and cosmetics industries. Another important customer segment consists of business customers in the area of sales and services. A newly acquired and steadily growing customer segment, in the B2C area, are private end users across all borders.

In order to be able to serve private end users in the packaging sector in the year 2026, a high degree of product customization as well as individualization and personalization is required, which must be accomplished in a single run of one. Another important aspect is attributed to the packaging design. Customers have the urge to differentiate themselves from their competitors with their product packaging, which is why they must constantly be offered innovative solutions. The highest possible degree of finishing and haptic properties play an important role here. However, one of the decisive factors for the enormous development in the packaging sector is the packaging of integrated media. In conjunction with smartphones and tablets, such intelligent packaging solutions can provide the end user with additional product or consumer information. At the same time, this trend is of significant importance to business customers because intelligent packaging solutions can capture end-user data and use it for future business campaigns. In this sector of the creative industry, too, customers expect increased services in terms of delivery speed, quality promises and transparent payment systems. B2C end users in particular also expect services on online platforms, such as design tools provided free of charge, as well as a broad selection of ready-made templates to be able to independently create their own product ideas.

- Within the packaging sector, some companies have taken a prominent role at the top of the market and established themselves. These "big players", for example, intensively network with long-term and recurring business customers via ERP systems which is also very cost-intensive. On the one hand, customers are even more closely tied to the company, on the other hand, productions and services are. Even more geared to the needs of customers. For employees, this requires skills in computer science to be able to manage interfaces from a technological point of view. Constantly developing and designing new packaging solutions for customers also requires innovative thinking and acting as well as an affinity to digital media. This aspect is very important in asserting and surviving as a "big player" in the packaging market over the competition. The implementation of newly developed packaging solutions for customers also requires support during production by other partners. For this, major packaging companies rely on specialized partner companies, for example those from the graphics or printing industry, who are integrated into the packaging company's value-added network.
- Another group are medium-sized and small packaging companies, some of them only a few Employees. The relationship between these companies and their customers

takes place on a very personal and direct level. This requires employees to be absolutely customer-focused and able to anticipate the expectations and needs of their customers. Particularly in the packaging market, small and medium-sized enterprises have extremely difficult to keep long-term business customers. A major problem here is the largely non-existent employee competence of creativity and innovation in order to create completely new and high-quality packaging solutions for customers. High level of consulting expertise for customers is no longer enough to assert oneself successfully in the packaging market. Technical application skills in dealing with sophisticated 3D simulation tools for creating and designing packaging solutions are inevitable for well-trained packaging technicians to survive in this market. Small and medium-sized packaging companies are also faced with the challenge of assembling a team of employees who have both the technical skills described above and creative and graphic skills. The technological competences of the employees, who are trained as packaging technology technicians, demand the safe handling of special programs in order to be able to put together the necessary packaging material for the protection of the packaging material and to be able to test it through detailed simulation scenarios. In addition to industry-specific guidelines, "IT language skills" are required above all for the programs. Graphic and creative skills must be mastered by trained media designers specializing in the packaging industry. The design of designed packaging solutions must be innovative and stand out from the competition in the marketplace. In addition, this requires employees with this particular focus to work closely with customers, as well as the willingness to work flexibly with team members with packaging technology technicians. As a basis for the designer's creative work, the technically elaborated implementation aspects of the package-technologists form the basis of the packaging solution.

- The third group of self-employed experts focuses on design and design. As a rule, they do not acquire customers on their own but work together in close cooperation with the packaging companies. For this, they flexibly access card order data in the major packaging companies and develop graphical and design solutions for the B2B sector. Furthermore, the highly qualified experts are characterized by an enormous spirit of innovation as well as comprehensive industry knowledge. They identify important and emerging industry trends in advance and tailor them to customers' packaging solutions. The high level of IT affinity of the self-employed experts also enables them to manage the online design tools provided to large companies with online shops for end users and to advise and support customers in real time in product creation. Managing online stores as well as creating and designing new templates also allows highly skilled experts to work flexibly anywhere, which has a positive impact on productivity.

Implications for entrepreneurial competences

In the sub-sector "Packaging" entrepreneurs have to master programming skills in order to create intelligent packaging solutions. This programming knowledge allows setting up interfaces to provide relevant additional information for specific end devices. Software-specific competences enable a professional handling with 3D- simulation programs to design innovative and unusual packaging. Expertise in innovative materials for packaging materials that are cheap and completely recyclable will be essential for the future.

Key Partners

advertising agencies

suppliers

programmer

printing companies

paper industy

ICT partners

Laboratories (research on toxics of inks on H&S connected to packaging in the food sector)

Key Activities

flexible adaptation of production through different customer requirements and segments (preparation and handling of customer data)

Preparation and handling of customer data

Online customer service / Logistics

Consultancy on diversity in application of packages

Health in relation to food packaging

Security quality systems to prevent from fake content

Key Resources

Competences in the areas of: innovative spirit, programming, digital media affinity, data protection, content creation

Competences for the professional handling of digital editing and design tools

Creativity and consulting skills to translate customer requirements into creative solutions

Value Propositions

High degree of product customization and personalization

(edition one)

wide selection of innovative packaging designs (high degree of finishing / haptic properties)

intelligent packaging solutions (integrated media for smartphone / tablet applications)

Services beyond the packaging solution (same-day production and delivery)

Delivering packaging applications; for instance:

Measurement of the aspects of the content of the package

user-friendly tools on the online platform for creating and designing customer-specific packaging solutions

large selection of ready-made templates

easy and fast payment process (PayPal)

Secure the safety of the product in the package between producer and end user

Customer Relationships

anonymous and online with live support 24/7 (live chat / whatsapp / social media)

Customers are providing real-time support to quickly complete the design and purchase process

no local binding for product creation and purchasing process

Channels

digital online platforms

direct connection to customer ERP systems

Applications for smartphones and tablets

Customer Segments

Business to Business (B2B):

- industry
- retail
- service companies

Business to Consumers (B2C):

- private individual (all genders, ages, transnationally)

Cost Structure

Cost shares to key partners

high costs for production materials

Revenue Streams

Differentiated price graduation through different service offers (Design support, delivery time, data archiving...)

5.3 Sign and display

Scenario 2026

Within the creative industry, the subarea of “sign and display” has undergone a major transformation. Today, they cover a much wider range of applications than they did 10 years ago. The field of application for classic signage has also been fundamentally further developed in terms of material selection, shapes and ink compositions. It is generally expected that this subsector will continue to change strongly and new niche markets will be tapped.

End-user service has evolved significantly in the signage application area. Signs in combination with media applications (tablets / smartphones) offer the possibility to send potential customers in the immediate vicinity discount codes for certain products or product information. Another customer service is used in the area of intelligent digital signal technologies. Special facial recognition cameras capture the moods of potential end users and, in this way, tailored a specific advertising program to the particular viewer in front of the display. Revenue in the business “sign and display” are generated predominantly from the manufactured products. Furthermore, customer service fees apply if advertisements fail or maintenance is required. The relationship between business customers and production companies is thereby strengthened, as service / maintenance employees are available to customers online in the event of problems. Further innovative customer trends are developing especially in the direction of 3D signage. In this context, customers attach great importance to the highest possible degree of refinement of their signs. In addition to a high resistance of the signs, customers are also interested in special colors in order to attract as much attention as possible to potential end customers.

- The large companies in the field of the production of signs and displays have a wide technological know-how and have a great financial leeway. The "big players" in the market employ well-educated professionals across industries with diverse skills to develop new powerful digital signal technologies. Also in the field of sign production, the professionals need to have a broad knowledge of the different substrates, inks and varnishes in order to be able to offer customers new innovative product solutions. In order to produce intelligent signs, the big companies also employ people with IT know-how and programming skills to develop the interfaces to smartphones and tablets. Other important skills of employees in large companies are the spirit of innovation, creativity and design in order to be able to design new unusual sign shapes at any time. The development of new trends and products is predominantly from the big companies, as there are financial resources for research and development.
- The group of small and medium-sized companies with 5 to 15 employees relies on a broad value-added network with many cooperation partners for the production of high-quality signs and displays. Employees with IT skills tend to be rarely employed due to lack of financial resources. For this reason, employees in small and medium-sized enterprises are more likely to have the technological skills needed to produce simple signs. Competencies for the production of intelligent signs or high-quality displays have to be purchased via cooperation partners. In addition, small signage

companies often seek to operate in niche markets, requiring employees' good market knowledge and an in-depth understanding of their own business model.

- The third group of self-employed professionals, with their technical skills and programming skills, offer themselves to large companies to work in projects. Occasionally they work together with small and medium-sized companies. The highly qualified experts are largely independent within their working environment and can organize their working hours independently. In general, they earn relatively high salaries for project work and also work independently of location. The daily routine of self-employed professionals is also very varied, as the projects differ greatly and different competences are required for each project. However, self-employed workers must also have project management skills in order to be able to allocate their working time as optimally as possible and, if necessary, to be able to work in parallel for several projects.

Implications for entrepreneurial competences

The display production requires of entrepreneurs knowledge of content creation and design creativity. Likewise, technical skills for the maintenance of defective displays are required. For the production of signs also competences in the field of material science are necessary to be able to offer customers innovative substrates and special inks and lacquers.

Key Partners

Information- and communication technology

A- / V- Industries

Information architects

Advertising agencies

Printing companies

IT-companies

Key Activities

Consultancy

signs / display production

programming

make creative designs

customer advisory

Key Resources

Competences in the field of design, creativity, innovative spirit, content creation, programming skills, advertising psychology

Building law competences for signs

Technological competences for signs (3D printing / direct printing)

as well as competences for materials (fluorescent colors / substrates)

Value Propositions

Problem solver (self declaration)

Superfluous questions / conversations should be spared end users

“manipulating”

Decide on the end-user decisions (which should be taken away, what exactly should be looked at)

Promote loyalty to your end users

picking up and visualizing ideas from customers

In combination with media applications (smartphone / tablet) offer services to potential end users: additional discount codes on products when end users are in the immediate vicinity of the sign

Intelligent displays use facial recognition cameras to capture the mood of end users and tailor a particular program to potential customers

Intelligent signs send potential end users within reach of additional product information

(location determination via smartphone / tablet)

Offering Signage in Large and Super Large Format for Special Applications (Attention Effect)

⇨ Banner trend to cover buildings

Advertising is becoming shorter-lived, which is why customers demand adjusted prices

Customers expect eye-catching 3D signage with haptic effects, finishing and high product resistance

Customer Relationships

directly (automated) at the scene

Online and anonymous with embedded chat features to support customers

For large customers, external employees are in the field

Channels

Online platforms for customers with appropriate tools for creating and designing their own signs

Online tools for customers to create their own output for displays

Customer Segments

Business to Business (B2B):

- In buildings for orientation
- Serve as instructions for machines
- Small customers from retail and service industries
- Major customers from the manufacturing industry (industry)

Business to Consumers (B2C):

- Niche markets

Cost Structure

Technologies: AR / VR (showing and telling)

Delivery to key partner

Revenue Streams

Consultancy fees

For signage, the customer pays only the product (no price graduation through service offerings)

If displays fail, paid maintenance is required

5.4 Digital marketing companies

Scenario 2026

The agency industry has undergone a significant change in the past 10 years and has continued to evolve considerably since them. The growth of the agency industry is mainly attributable to the customer segment in the B2B area. Customers come from a wide variety of markets, either from niche markets and expect individually tailored marketing solutions. Customers come from a variety of markets, and expect industry-specific marketing solutions. The key to success is that the marketing solutions are adapted to the needs of potential end users of business customers.

The value proposition of digital marketing agencies spans all online marketing solutions such as social media or content creation. Above all, cost-optimized prices in combination with service offerings are of great importance to customers. Examples include the administration or renewal of online media around the clock for the customer.

The price structure for customers for digital marketing agencies consists of fixed and variable service fees. Agencies generate e.g. Sales from customer campaigns that are executed according to previously defined customer expectations. Digital marketing agencies also generate revenues from customer subscriptions, where customers make payments for social media services on behalf of the agency within certain time intervals.

- Large advertising agencies put a lot of emphasis on IT skills when hiring new employees. The IT competencies include all programming languages for a professional creation of web sites and applications for smartphones and tablets. The market segment of the professional development of applications for the B2B sector has mainly been adopted by the large established marketing agencies. Since professional programmers receive a very high salary, a recruitment is financially feasible only for large advertising agencies.
- Small and medium-sized advertising agencies, some of which have only a few employees, also prefer to employ well-trained IT specialists, mainly to create web sites. At the same time, small and medium-sized companies are increasingly looking for Socia media managers. Skills for setting up profiles on the various platforms as well as managing these profiles for customers in the B2B segment has become one of the main tasks of small and medium-sized marketing agencies. Creating content on various online channels has also become an integral part of business models and has become a lucrative business for ad agencies. H6wever, even in this sub-sector, small and medium-sized digital marketing agencies rely on solid cooperation partnerships with other companies in order to compensate for the lack of competencies in their own company. These include e.g. printing companies to create their customers such as digital services such as online catalogs or professional photographers. Other cooperation partners are specialized 2D / 3D animators to create elaborate effects that should be integrated into specific media for customers.
- The group of freelancers, which consists of highly specialized experts, is in high demand among the major digital marketing agencies. Excellent programming skills as

well as extensive expertise in the field of community management enable the experts to fulfill all digital marketing requirements for customers. These experts are also locally independent and have the opportunity to work flexibly from home. Their individual job profile and the largely temporal independence gives them a little leeway to shape the work-life balance.

Implications for entrepreneurial competences

Self-employment in subsector “digital marketing agencies” will demand skills for social media marketing. Successful campaigns require 24/7 content creation, which must be mastered by the workforce. However, the right target group must be addressed via the respective social media channels, which also requires customer orientation. In addition, understanding of data analysis / management is an important competence for working with social media channels to be able to measure the success of marketing campaigns.

<table>
<tr>
<td rowspan="2">Key Partners

Social networks

Print companies

Freelance designers / web developers

Photographers

2D / 3D animators

Developers of social media monitoring and social media listening tools</td>
<td>Key Activities

Design process, Content creation, social media monitoring, Data analytics / management, Self-marketing, Community management

Communication interface between end user and business customer</td>
<td rowspan="2">Value Propositions

Complete service provider beyond all online marketing solutions (social media, content creation, viral films)

⇨ one stop shop

Implement marketing services within the shortest possible time

Cost-optimized prices in connection with service offers (Renew and manage content for customers on online media as 24/7)

Empathize with customer needs and offer holistic solutions

General data protection regulation for handling with personal data (GDPR)

Provide customers with special online tools to create and design their own products and to convey their own ideas to the agency

(Product forms, exact color combinations and texts)

Customers expect a sort of "business consulting" with a focus on (external) communication Business customers expect the agency to play back feedback from end users</td>
<td>Customer Relationships

direct and personal to be able to convey exact customer ideas / needs

anonymous and online through embedded live chat features on websites (Assistance with questions and ambiguities on the part of the customers)</td>
<td rowspan="2">Customer Segments

Business to Business (B2B):
• From different markets / niche markets with industry sector specific marketing needs

⇨ Marketing solutions must be adapted to the needs of the potential end users (indirect end-consumers) of the business customers</td>
</tr>
<tr>
<td>Key Resources

Databases for order and customer archiving

Digital / technical tools to visualize and implement customer requests

Account managers to secure custom care

Competences about digital media / data protection and

Expertise in scrum (Project and product management as well as agile software development), agility and design thinking, “art of writing”

Licenses for social media tools</td>
<td>Channels

Digital interface via online platforms to agencies

Social media channels for customer interaction and loyalty

Physical regional / local connection to customers</td>
</tr>
<tr>
<td colspan="2">Cost Structure

Licences, knowledge maintenances, hour labour

externally provided services of co-operation partners</td>
<td colspan="3">Revenue Streams

Incurring fixed / variable service fees

Revenue per campaign (customer pays for defined campaigns that the agency executes)

Revenues from time periods / subscription basis (agency cares about social affairs) media accounts for certain time intervals</td>
</tr>
</table>

5.5 Gaming

Scenario 2026

Within the creative industries gaming has become the subsector with the highest economic importance. Games in entertainment as well as gamification and serious games have taken a tremendous development during the last ten years – and this sector ist still growing.

The variety and volume of games has increased exponentially – and is some kind of standard in almost every imaginable area of application: e.g. news on the web are connected with edutainment elements, instructions for complex machines and technical eqipment (in professionell as well as in private range of use) are almost exclusively available in digital format.

Huge progresses in usability just as low prices for technical components for gaming solutions have pushed the diffusion of games for target groups of nearly all ages – and ethnic group. Therefore serious gaming plays an important role e.g. in the health sector by now or in elderly care to support a healthy lifestyle or to assist medical therapies and strengthen compliance.

Another important application segment is the area of learning. Game-based learning is established on nearly any stage in the educational system. Scholars in primary school use gamification as well as students at the university or people in their daily job.

The gaming industry is fracmented into three main sub-segments:

- Some “big players” that develop and distribute the “big games” in the entertainment sector. The development of innovative games requires a tremendous amount of capital and the risk to fail on the market is very high. There are very few companies older than 8 or ten years (with their origin often in the “old entertainment” industry) and several enterprises that were founded during the last 3-4 years. The latter are on the cusp to successfully take the next step in their (internal) development to survive the severe competition in the global games market. They do not only need growth capital but also new ideas for innovative games and business models. Game development occurs in projects with a lot of specialised small and medium-sized enterprises and freelancers with a unique expertise.
- The second group consists of many medium-sized and small enterprises (and also a lot of micro-enterprises with less than 5 employees). They try to combine a mixture of employees with technical skills and with competencies in psychology/didactic etc. Their business segments are predominantly in specialised areas such as healthcare, personal training, nutrition etc. Their special expertise refers to technical skills (e.g. programming) and in most of the cases didactic and content. The successful enterprises manage to develop innovative didactic concepts, deliver high-quality content and are able to edit complex subjects in a smart way. They often work as a partner in projects or in firm cooperations with other SME up to the great games companies. There are manifold opportunities for gamification-based solutions for new target groups and on new (regional) markets – mostly in niches (long-tale business models tend to be very successful).

- There is a group of high qualified experts with specialised competencies (mosly technical skills) that work as freelancers in projects. They are highly paid and largely independant – and they are requested by the big players as well as by SMEs. Personally they are in a very comfotable situation: they can choose they job and can realise a high grade of individual fulfillment. But they also face the challenge to manage their work-life balance; competencies in project-management as well as in self-management (e.g. time-, health-management) are compulsary necessary.
  The other side of the coin of so amny solopreneurs in the gaming industry is the big number of “mini-jobbers”. They widely work on micro-jobs that can hardly be automated (e.g. translation, programming) and that are poorly paid.

Because of its innovativeness and overall “entrepreneurial spirit” the gaming sector offers a lot of interesting jobs and opportunities for people who set value of their independance. The decoupling of time and place facilitates home-office or part-time-work in a nearly excellent way. Therefore the percentage of female entrepreneurs and employees is very high in this segment. Although people of nearly all ages unse games the gaming industry is still dominated by young people – career perspectives for people older than 40 years are realtively low (camparable to the situation in advertising agencies fifteen years ago).

Implications for entrepreneurial competences

For the gaming sector, technical skills for AR and VR as well as mixed reality will be a great importance to make game solutions seem ever more realistic. In order to adapt game solutions as closely as possible to the end user, competencies must be acquired which allow the developer to collect as much data as possible about the potential end user and to use it confidentially. Developers must e.g. developing game solutions with learning effect for schools or universities requires subject-specific skills in order to be able to adapt the content. Developing game solutions is a very challenging business. For this, entrepreneurs need skills to build up a value creation network with competent cooperation partners.

<table>
<tr>
<th rowspan="2">Key Partners</th>
<th>Key Activities</th>
<th rowspan="2">Value Propositions</th>
<th>Customer Relationships</th>
<th rowspan="2">Customer Segments</th>
</tr>
<tr>
<td>Developing / programming
Designing games
(game mechanics)
user experience design to create user-friendly and well-designed user interfaces for end users
Support of players / users to make continuous improvements</td>
<td>Automated and online via services
personal contacts in branches</td>
</tr>
<tr>
<td rowspan="2">specialized developers
(Customers in relation to development of AR/VR and in relation to education, simulation in development of products, production processes, maintenance, etc.
Suppliers for hardware and IT services)
Supporters in the areas IT / VR, AR / didaktik / content</td>
<td>Key Resources</td>
<td rowspan="2">Casual gaming
(funny Games)
Serious game
(Health care with gamification approach to behavior change)
education
For the health sector, the game approaches connect with other devices (heart rate monitor, balance, blood glucose meter, ...)
⇨ End users are motivated to perform certain tasks (blood pressure measurement, weighing, ...)
Adapting game applications to personal characters of end users (consider interests and preferences)
Collecting user data (big data) for customization and personalization
Gaming with innovative headset applications / Augmented Reality / Virtual Reality / Smart Watches ... to provide the end user with attention to detail
⇨ Provide end users with a particularly realistic entertainment experience
⇨ Providing end user learning support through simulated scenarios
VR/AR: education, simulation in development of products, production processes, maintenance, etc.</td>
<td>Channels</td>
<td rowspan="2">Business to Business (B2B):
⇨ Schools (tech. / Social)
⇨ Universities (tech. / social)
(join together for innovative (serious) games in collaborative applied research projects)
⇨ Entrepreneurs
⇨ Developers of products or production processes / equipment in companies
(technical oriented companies; human relations oriented companies in the health sector education)
⇨ Mention hospitals
⇨ Health professionals
(for serious games on other topics, like inclusion, diversity, poverty, etc.)
Business to Consumers (B2C):
⇨ All age groups
⇨ All genders
Transnationally</td>
</tr>
<tr>
<td>Hardware (sensors, consoles)
Developers / Programmer
skills in programming / data security / software / consumer protection
financial leeway to invest
technological know-how
specialised freelancers</td>
<td>Distribution takes place online via digital platforms or in branche</td>
</tr>
</table>

<table>
<tr>
<th>Cost Structure</th>
<th>Revenue Streams</th>
</tr>
<tr>
<td>Workload of the developers
Workload for testing user experience design
The largest share of costs is incurred by developers of the games</td>
<td>fees for Upgrades / unlock extended areas and additional options
sponsoring and subsidies also from customer segments to support the development (government grant to develop a game on a specific social topic)
fees rebates for intensive use / certain scores reached
on a commercial level, com., parties com. Games finance and offer them to their customers for free (eg paid casual games for potential customers of banks, telecom operators or food chains for the purpose of advertising)</td>
</tr>
</table>

6. Portfolio of entrepreneurial competences and skills for the future in the creative industries

Bringing the results of the analyses in the various sectors together it becomes apparent that there are several overlaps in the demand of new entrepreneurial skills and competences.

The different competences can be converted into a portfolio of entrepreneurial competences with different category groups:

- In the center of the portfolio there are the “core” competences. These core competences for entrepreneurs in the creative industries consist of entrepreneurship competences and of digital competences. This competences are some kind of basics that are relevant for all entrepreneurs resp. people with entrepreneurial ambitions in the creative sector. With reference to the Thrive!-project they apply to the three defined targets groups of the project in equal measure.
- In a second step these competences have to be assessed and complemented by competences and skills that refer to the special lacks in competences of the different target groups.
- And in addition to that dependent on the subsector there are some special competences that are important to be successful on the specific markets of the subsectors.

This mix of entrepreneurial competences and skills is illustrated by figure #:

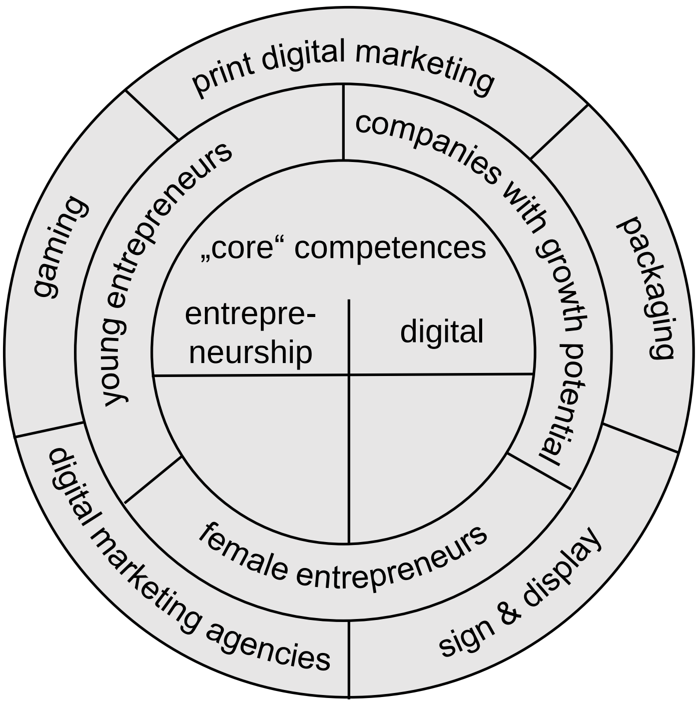

Fig. #: Competence model for entrepreneurship in the creative industries

6.1 Entrepreneurship competences

In the age of digitisation new products and services mostly arise on the basis of new business models. Business model innovation has become one of the central guidelines in entrepreneurship.

Therefore entrepreneurs have to

- understand what business models – and its elements – are, how they function, and they also must know some “standard” types of business models (e.g. multi-sided platforms, long tail, freemium),
- know and be able to exercise methods for business model generation (e.g. CANVAS).

With respect to the current approaches in entrepreneurship that choose customer needs/ problems and customer benefit as the starting point of entrepreneurial activities the modern profile of qualifications/vcompetences/skills of a successful entrepreneur covers the ability:

- to identify trends and technological developments early
- to evaluate trends and convey the consequences for the current (and) future business
- to develop an innovative (business) concept
- to implement the concept
- to inspire the employees (and business partners) of the concept
- to adapt the concept to changing framework conditions

In this context methods and tools entrepreneurs should know are

- entrepreneurial design
- lean startup
- customer development
- design thinking
- Business model CANVAS

The framework conditions of innovation and entrepeneurship of the future are highly dynamic and volatile. Working in projects and cooperation with a broad spectrum of different partners – companies, startups, solopreneurs, freelancer, universities and research organisations – demands appropriate skills.

- Capacity for teamwork
- Workinmg in flexible structures
- Project-management - basics of “traditional” project-management (also multi-project-management) as well as new approaches like agile project management, scrum
- Integration of external partners
- coordination of complex teams
- Intercultural competences
- Leadership competences

The increasing group of solopeneurs and freelancers also needs to have special skills in the sector of personal competences like self-management, time-management, health-management/resiliance, and self-marketing.

Although research and also the current discussion highlight that entrepreneurship is not technical skills plus knowledge in business administration in the future management and business knowledge will still be an important and integral part of entrepreneurial competences. The catalogue of the traditional competence profile of an entrepreneur covers the following aspects and subjects:

- Accounting
- Balancing of accounts
- Controlling
- Law (work/labour, taxes etc.)
- Management and organisation
- Leadership
- Marketing and distribution
- Communication
- Finance
- Public relations
- Logistics
- Professionell experience

Because of some fundamental changes in the "core" issues of business administration (the developments that can be summarised with the term "crowd-#") have a profound impact on business knowledge. Especially financing and funding have changed fundamentally ("crowdfunding").

On this background the catalogue of basic skills in business administration for entrepreneurs has to be enriched by topics as crowd-funding, social-media, new organisational concepts, new leadership concepts, (virtual) cooperation etc.

6.2 Digital competences

Because of the general dominance of the digital transformation and its impact on nearly all business sectors the set of skills and competences for entrepreneurs should cover some basic digital competences. The speed of the development is very high – and still incerasing. Therefore it is impractical to name special computer programs, tools etc. as part of appropriate skills. And: Digitisation ist much more than technology – at least soft-factors have the same importance for the success of dihgital transformation.

We suggest to take the definition/description of "potential" digital competences by Klug 2017 as framework for the Thrive!-project.
(note: there are some overlaps with the entrepeneurial competences listed above)

1. **Sense-Making**
   Ability to draw conclusions from a great many of data („big data")
   (not only analytic-tools, but creative capabilities are needed)
2. **Social Intelligence**
   Ability to use empathy – scrutinise digital processes

3. **Novel and adaptive Thinking**
   Ability to think innovative in problem-solving (cross-industry innovation)
4. **Cross-Cultural Competency**
   Ability to adapt quickly to modified cultural frame conditions
   (e.g. cross-cultural teamwork)
5. **Computational Thinking**
   Ability to convert a multiplicity of data into abstract concepts
   (programming competences)
6. **New Media Literacy**
   Ability to work with new digital forms for expression (photos, video, texts, language…)
7. **Transdisciplinarity**
   Ability to think in greater /superior contexts
   (disestablish „silo mentality")
8. **Design Mindset**
   Ability to think like a designer in problem solving (perspective of customer)
   („design thinking")
9. **Cognitive Load Management**
   Ability to screen information much better to keep productive
10. **Virtual Collaboration**
    Ability to work in virtual working constallations
    (digital tools for communication, cloud-computing)

6.3 Competences that can overcome special barriers that the different target groups are faced with

Young entrepreneurs

Young entrepreneurs need

- in many cases more profound skills in (fundamental) business knowlegde and skills
- specific management tools for dealing with crises (crisis management)
- a functional early-warning system

and on the level of personal competences

- a good selfmanagement
- resilience / health management

Young entrepreneurs often work as micropreneurs or solopreneurs – especially when they start their business. Therefore they also need skills in

- using platforms to gain mandates (e.g. specialist working as a freelancer)
- teamworking – teams with members of different cultures and disciplines
- networking, e.g. to support a continuous occupation.
- a good project-management to coordinate different/parallel jobs.

Employees with entrepreneurial spirit

Members of this target group need

- Sophisticated skills in project-management (with regard to the digitalisation especially with modern concepts in project-management like agile projectmanagement, scrum etc.)
- Skills in communication
- Competences in leadership

Bogott et al.[10] deliver some practical hints for the competences of employees in startups – that can also be used for employees in companies with growth potential:

- Ability to communicate
- Interpersonal skills
- Ability to work under pressure
- Committment
- Resiliance
- Innovativeness
- Adaptiveness / flexibility
- Time- and self-management (ability to set goals, ablitiy to priotise etc.)
- Ability to work in teams
- Cross-cultural competences
- Networking

Female entrepreneurs

There are some specific competences for female entrepreneurs:

- improve the willingness/ability to take financial risks, e.g. negatiation with VC and banks
- support decision making, e.g. by methods and tools that accelerate the process of decision making.
- work-life-balancing/-blending.

10 Bogott et al.: Im Startup die Welt gestalten Wie Jobs in der Gründerszene funktionieren.

6.4 Competences specific for the selected subsectors

Professional competence will still be of great importance in the creative industries of the future – here the relevant curricula will be adapted over time.

High qualified professionals who will be working as self-employed entrepreneurs in the creative industry in the year 2026, preferably in one of the 5 subsectors, have to rule sector-specific competences.

Print companies with integrated marketing solutions

For the Subsector “print digital marketing”, it is necessary that entrepreneurs will have a deep understanding of Big Data. Data-driven marketing systems will be established in every printing company and will be rely on a wealth of personal data for successful marketing campaigns. For this purpose, future specialists also demand knowledge of an automated read-out data algorithms. Technical understanding of the automation and networking of machinery will be an important aspect to enable the production of edition 1. This also requires competences about upstream and downstream production processes of the machinery. Owning personal data for marketing purposes further requires data security competencies to protect the end user's privacy and keep it anonymous.

Packaging

In the sub-sector "Packaging" entrepreneurs have to master programming skills in order to create intelligent packaging solutions. This programming knowledge allows setting up interfaces to provide relevant additional information for specific end devices. Software-specific competences enable a professional handling with 3D- simulation programs to design innovative and unusual packaging. Expertise in innovative materials for packaging materials that are cheap and completely recyclable will be essential for the future.

Sign and Display

The display production requires of entrepreneurs knowledge of content creation and design creativity. Likewise, technical skills for the maintenance of defective displays are required. For the production of signs also competences in the field of material science are necessary to be able to offer customers innovative substrates and special inks and lacquers.

Digital Marketing Agency

Self-employment in subsector “digital marketing agencies” will demand skills for social media marketing. Successful campaigns require 24/7 content creation, which must be mastered by the workforce. However, the right target group must be addressed via the respective social media channels, which also requires customer orientation. In addition, understanding of data analysis / management is an important competence for working with social media channels to be able to measure the success of marketing campaigns.

Gaming

For the gaming sector, technical skills for AR and VR as well as mixed reality will be a great importance to make game solutions seem ever more realistic. In order to adapt game solutions as closely as possible to the end user, competencies must be acquired which allow the developer to collect as much data as possible about the potential end user and to use it confidentially. Developers must e.g. developing game solutions with learning effect for schools or universities requires subject-specific skills in order to be able to adapt the content. Developing game solutions is a very challenging business. For this, entrepreneurs need skills to build up a value creation network with competent cooperation partners.

The table/list below delivers an appropriate framework for the self-assessment and the learning material to be developed and tested in the Thrive!-project.

Note:
Is has to be discussed wether the sector-specific skills are “entrepreneurial” skills or if they have to become integral part of the professional competence set for the specific sub sectors.