



# CIM Survey

## Deliverable 3.4

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## TABLE OF CONTENTS

1.	About this SURVEY.....	4
2.	Summaries.....	4
2.1.	EN .....	4
2.2.	DE.....	6
2.3.	EL .....	8
2.4.	BG .....	10
2.5.	BE.....	12
2.6.	PT.....	14
2.7.	IT .....	14
2.8.	LT .....	15
3.	Online questionnaire results .....	16
3.1.	Introduction and statistical background data .....	16
3.2.	Understanding creativity and innovation.....	19
3.3.	Creativity and innovation related competences .....	22
3.4.	Acquisition of creativity and innovation related competences .....	26
3.5.	Assessment and recognition of creativity and innovation related competences.....	30
3.6.	Digital learning.....	34
4.	Interviews/Focus Groups.....	36
4.1.	Description, objectives, procedure & key questions.....	36
4.1.1.	Description and objectives .....	36
4.1.2.	Procedure and selection of focus group participants .....	36
4.1.3.	Key interview categories .....	37
4.1.4.	Interview guide template (extract): .....	37
4.2.	Results - Focus group Higher Education Institutions.....	38
4.2.1.	Participants.....	38
4.2.2.	Current biggest learning needs .....	38
4.2.3.	Perceived importance of CIM.....	38
4.2.4.	Concept of creativity and innovation .....	39
4.2.5.	Instructional interventions to address CIM.....	39
4.2.6.	Validation.....	40
4.2.7.	Recognition/certification.....	41
4.3.	Results – Focus Group Business Practice .....	41
4.3.1.	Participants.....	41
4.3.2.	Current biggest learning needs .....	41



Creativity and Innovation Management in Higher Education

4.3.3.	Perceived importance of CIM.....	41
4.3.4.	Concept of creativity and innovation .....	42
4.3.5.	Instructional interventions to address CIM.....	42
4.3.6.	Validation.....	43
4.3.7.	Recognition/certification.....	43



## 1. About this SURVEY

The CIM Survey adds to the comprehensive desk research (“Needs Analysis”) which described the views and perceptions, the practices, competences, approaches and methodologies related to Creativity and Innovation Management on the national levels.

The survey on hand approaches the theme on a scientific quantitative and on a qualitative level.

The quantitative level was covered by a large-scale online survey which was answered by 423 respondents.

The qualitative part of the survey was carried out via focus group interviews with ## experts from all partner countries who discussed in a recorded online conference environment

The CIM survey, together with the desk research will substantially contribute to the discussion on how to bring about CIM and related competences at the interface of academia and business.

## 2. Summaries

### 2.1. EN

#### IO1 Summary

The research conducted in IO1 consisted of the desk research, the online questionnaire, and interviews. In the first phase of the stocktaking a research framework was established by UDE.

The needs analysis, which was carried out by each partner country based on an intensive literature review (desk research). It showed that Creativity and Innovation is perceived as a very important aspect in all countries, but approaches for fostering related competences, as well as validating them differ between countries, and even within countries. The same applies to digital learning; it is used in some way in all countries, but to different extents. The use has been increasing, especially the use of LMS, but most of the time those are not used up to their full potential. All countries make efforts, but also see room for improvement in educational offers for creativity and innovation, specific approaches of competence development in the field and their validation, as well as in the use of digital learning. The countries range from quite undeveloped to very progressive in the different aspects.

The online questionnaire was developed by the WP leader (UDE) in a constant loop of feedback with all partners. All partners were responsible for the distribution of the online questionnaire. The online questionnaire was answered by 423 respondents. The findings of the survey show and confirm what has been stated in the project proposal already; people do see the need for creativity and innovation competence development, and the benefits it has for different areas of peoples’ lives, as well as the importance of the validation of these competences. The practice, however, seems to not have reached that level yet. Many respondents stated that certain tools and approaches are used, but it seems like there is a variety of different ways and no uniform approach, which would be desirable to be able to provide transparency and comparability of learning outcomes of informal and non-formal learning. Also, not many people seem to know the EntreComp framework, which if this changed



could contribute to also increasing validation practices of creativity and innovation related competences.

Interviews and Focus group interviews were carried out with 37 and 27 experts from all partner countries on creativity and innovation from higher education and businesses.

Current biggest learning needs identified were interdisciplinary study approaches, the introduction of modern high-quality (blended) teaching and learning approaches, including lateral thinking skills, the need of experiences and activities within lectures and practical learning spaces, in which students can engage themselves.

The approach provided by the CIM project and the related Instructional interventions were perceived as very important from all respondents, especially specific modules relating to Design Thinking, joint real-life projects and entrepreneurship/innovation programs together with associated companies and institutions.

All participants report that there has been hardly any validation approach in place to assess creativity and innovation (competences), hence there is no transparency to identify competences and experiences of a candidate relating to CIM-competences.

#### Conclusion

The stocktaking carried out in the first project phase clearly substantiated the main R&D challenge and the hypotheses in regard to teaching, training, learning and validation in regard to Creativity and Innovation Management. There is a high demand of new approaches which strengthen the holistic, practice-oriented teaching and learning approaches in HE to promote CIM competences, that are considered substantial for economic growth and also social cohesion.



## 2.2. DE

### IO1 Zusammenfassung

Die in IO1 durchgeführte Forschung bestand aus der Schreibtischrecherche, dem Online-Fragebogen und Interviews. In der ersten Phase der Bestandsaufnahme wurde von der UDE ein Forschungsrahmen festgelegt.

Die Bedarfsanalyse, die von jedem Partnerland durchgeführt wurde basierte auf einer intensiven Literaturrecherche (Schreibtischrecherche). Sie zeigte, dass Kreativität und Innovation in allen Ländern als ein sehr wichtiger Aspekt wahrgenommen wird, aber die Ansätze zur Förderung der entsprechenden Kompetenzen sowie deren Validierung unterscheiden sich zwischen den Ländern und sogar innerhalb der Länder. Das Gleiche gilt für das digitale Lernen; es wird in allen Ländern in irgendeiner Form genutzt, aber in unterschiedlichem Ausmaß. Die Nutzung hat zugenommen, insbesondere die Nutzung von LMS, aber meistens werden diese nicht in vollem Umfang genutzt. Alle Länder machen Anstrengungen, sehen aber auch Verbesserungsbedarf bei Bildungsangeboten für Kreativität und Innovation, bei spezifischen Ansätzen der Kompetenzentwicklung in diesem Bereich und deren Validierung sowie bei der Nutzung des digitalen Lernens. Bei den Ländern finden sich solche, die noch eher unentwickelt sind ebenso wie solche, die bei den verschiedenen Aspekten schon sehr fortschrittlich sind.

Der Online-Fragebogen wurde vom Workpackage-Leiter (UDE) in einer ständigen Feedbackschleife mit allen Partnern entwickelt. Alle Partner waren für die Verteilung des Online-Fragebogens verantwortlich. Der Online-Fragebogen wurde von 423 Befragten beantwortet. Die Ergebnisse der Umfrage zeigen und bestätigen, was bereits im Projektantrag dargelegt wurde; die Menschen sehen die Notwendigkeit der Entwicklung von Kreativitäts- und Innovationskompetenzen und den Nutzen, den sie für verschiedene Lebensbereiche der Menschen haben, sowie die Bedeutung der Validierung dieser Kompetenzen. Die Praxis scheint jedoch noch nicht so weit entwickelt zu sein. Viele Befragte gaben an, dass bereits bestimmte Instrumente und Ansätze verwendet werden, aber es scheint, als gäbe es eine Vielzahl unterschiedlicher Wege und keinen einheitlichen Ansatz, der aber wünschenswert wäre, um Transparenz und Vergleichbarkeit von Lernergebnissen des informellen und nicht-formalen Lernens zu ermöglichen. Außerdem scheinen nicht viele Menschen den EntreComp-Rahmen zu kennen, der, wenn sich dies ändern würde, dazu beitragen könnte, auch die Validierung von kreativitäts- und innovationsbezogenen Kompetenzen zu steigern.

Es wurden außerdem Interviews und Fokusgruppeninterviews mit 37 bzw. 27 Experten aus allen Partnerländern zum Thema Kreativität und Innovation aus dem Hochschulbereich und Unternehmen durchgeführt.

Als derzeit größte Lernbedarfe wurden interdisziplinäre Studienansätze, die Einführung moderner, qualitativ hochwertiger (Blended) Lehr- und Lernansätze, einschließlich der Fähigkeit zum Querdenken, der Bedarf an Erfahrungen und Aktivitäten im Rahmen von Vorlesungen und Räumen für praktisches Lernen, in denen sich die Studierenden selbst engagieren können, identifiziert.

Der Ansatz des CIM-Projekts und die damit verbundenen didaktischen Interventionen wurden von allen Befragten als sehr wichtig empfunden, insbesondere die spezifischen Module zum Design Thinking, die gemeinsamen Projekte aus dem realen Leben und die Entrepreneurship-/Innovationsprogramme zusammen mit den kooperierenden Unternehmen und Institutionen.



*Alle Teilnehmenden berichten, dass es kaum einen Validierungsansatz für die Bewertung von Kreativität und Innovation und der diesbezüglichen Kompetenzen gibt, daher gibt es keine Transparenz, um Kompetenzen und Erfahrungen eines Kandidaten in Bezug auf CIM-Kompetenzen zu identifizieren.*

#### Schlussfolgerung

Die in der ersten Projektphase durchgeführte Bestandsaufnahme hat die zentrale F&E-Herausforderung und die Hypothesen in Bezug auf das Lehren, Trainieren, Lernen und Validieren in Bezug auf das Kreativitäts- und Innovationsmanagement deutlich untermauert. Es besteht ein hoher Bedarf an neuen Ansätzen, die die ganzheitlichen, praxisorientierten Lehr- und Lernansätze im Hochschulbereich stärken, um CIM-Kompetenzen zu fördern, die als wesentlich für das Wirtschaftswachstum und auch den sozialen Zusammenhalt angesehen werden



## 2.3. EL

### IO1 Περίληψη

Η έρευνα που πραγματοποιήθηκε στο IO1 περιελάμβανε έρευνα γραφείου, διαδικτυακό ερωτηματολόγιο και συνεντεύξεις. Στην πρώτη φάση του απολογισμού, ένα ερευνητικό πλαίσιο καθιερώθηκε από την UDE.

Η ανάλυση των αναγκών, η οποία πραγματοποιήθηκε από κάθε χώρα εταίρο βάσει μιας εντατικής βιβλιογραφικής επισκόπησης (έρευνα γραφείου). Έδειξε ότι η Δημιουργικότητα και η Καινοτομία θεωρούνται ως μια πολύ σημαντική πτυχή σε όλες τις χώρες, αλλά οι προσεγγίσεις για την ενίσχυση των σχετικών ικανοτήτων, καθώς και η επικύρωσή τους διαφέρουν μεταξύ των χωρών, ακόμη και εντός των χωρών. Το ίδιο ισχύει και για την ψηφιακή μάθηση. Χρησιμοποιείται με κάποιο τρόπο σε όλες τις χώρες, αλλά σε διαφορετικές εκτάσεις. Η χρήση έχει αυξηθεί, ειδικά η χρήση του LMS, αλλά τις περισσότερες φορές αυτές δεν χρησιμοποιούνται μέχρι το μέγιστο των δυνατοτήτων τους. Όλες οι χώρες καταβάλλουν προσπάθειες, αλλά επίσης βλέπουν περιθώρια βελτίωσης στις εκπαιδευτικές προσφορές για δημιουργικότητα και καινοτομία, συγκεκριμένες προσεγγίσεις ανάπτυξης ικανοτήτων στον τομέα και την επικύρωσή τους, καθώς και στη χρήση της ψηφιακής μάθησης. Οι χώρες κυμαίνονται από αρκετά ανεπτυγμένες έως πολύ προοδευτικές στις διάφορες πτυχές.

Το διαδικτυακό ερωτηματολόγιο αναπτύχθηκε από τον ηγέτη WP (UDE) σε έναν συνεχή βρόχο ανατροφοδότησης με όλους τους συνεργάτες. Όλοι οι συνεργάτες ήταν υπεύθυνοι για τη διανομή του διαδικτυακού ερωτηματολογίου. Το διαδικτυακό ερωτηματολόγιο απαντήθηκε από 423 ερωτηθέντες. Τα ευρήματα της έρευνας δείχνουν και επιβεβαιώνουν τι έχει ήδη αναφερθεί στην πρόταση του έργου. Οι άνθρωποι βλέπουν την ανάγκη για ανάπτυξη ικανοτήτων δημιουργικότητας και καινοτομίας, καθώς και τα οφέλη που έχει για διάφορους τομείς της ζωής των ανθρώπων, καθώς και τη σημασία της επικύρωσης αυτών των ικανοτήτων. Η πρακτική, ωστόσο, φαίνεται ότι δεν έχει φτάσει ακόμη σε αυτό το επίπεδο. Πολλοί ερωτηθέντες δήλωσαν ότι χρησιμοποιούνται ορισμένα εργαλεία και προσεγγίσεις, αλλά φαίνεται ότι υπάρχει μια ποικιλία διαφορετικών τρόπων και δεν υπάρχει ομοιομορφή προσέγγιση, η οποία θα ήταν επιθυμητό να είναι σε θέση να παρέχει διαφάνεια και συγκρισιμότητα των μαθησιακών αποτελεσμάτων της άτυπης και μη τυπικής μάθησης. Επίσης, δεν φαίνεται να γνωρίζουν πολλοί άνθρωποι το πλαίσιο EntreComp, το οποίο εάν αυτό αλλάξει θα μπορούσε να συμβάλει επίσης στην αύξηση των πρακτικών επικύρωσης της δημιουργικότητας και των ικανοτήτων που σχετίζονται με την καινοτομία.

Οι συνεντεύξεις και οι ομαδικές συνεντεύξεις Focus πραγματοποιήθηκαν με 37 και 27 εμπειρογνώμονες από όλες τις χώρες εταίρους σχετικά με τη δημιουργικότητα και την καινοτομία από την τριτοβάθμια εκπαίδευση και τις επιχειρήσεις.

Οι τρέχουσες μεγαλύτερες μαθησιακές ανάγκες που εντοπίστηκαν ήταν διεπιστημονικές προσεγγίσεις μελέτης, η εισαγωγή σύγχρονων προσεγγίσεων διδασκαλίας και μάθησης υψηλής ποιότητας (ανάμεικτες), συμπεριλαμβανομένων δεξιοτήτων πλευρικής σκέψης, η ανάγκη εμπειριών



και δραστηριοτήτων μέσα σε διαλέξεις και πρακτικούς χώρους μάθησης, στους οποίους οι μαθητές μπορούν να εμπλακούν .

Η προσέγγιση που παρέχεται από το έργο CIM και οι σχετικές διδακτικές παρεμβάσεις θεωρήθηκαν πολύ σημαντικές από όλους τους ερωτηθέντες, ειδικά από συγκεκριμένες ενότητες που σχετίζονται με το σχεδιασμό σκέψης, κοινά προγράμματα πραγματικής ζωής και προγράμματα επιχειρηματικότητας / καινοτομίας, μαζί με συνδεδεμένες εταιρείες και ιδρύματα.

Όλοι οι συμμετέχοντες αναφέρουν ότι δεν υπήρξε σχεδόν καθόλου προσέγγιση επικύρωσης για την αξιολόγηση της δημιουργικότητας και της καινοτομίας (ικανότητες), επομένως δεν υπάρχει διαφάνεια για τον προσδιορισμό ικανοτήτων και εμπειριών ενός υποψηφίου σχετικά με τις ικανότητες CIM.

### **Συμπέρασμα**

Η απογραφή που πραγματοποιήθηκε στην πρώτη φάση του έργου τεκμηριώνει σαφώς την κύρια πρόκληση E & A και τις υποθέσεις σχετικά με τη διδασκαλία, την κατάρτιση, μάθηση και επικύρωση όσον αφορά τη Δημιουργικότητα και τη Διαχείριση Καινοτομίας. Υπάρχει μεγάλη ζήτηση για νέες προσεγγίσεις που ενισχύουν τις ολιστικές, προσανατολισμένες στην πρακτική προσεγγίσεις διδασκαλίας και μάθησης στην ΑΕΙ για την προώθηση των ικανοτήτων CIM, οι οποίες θεωρούνται ουσιαστικές για την οικονομική ανάπτυξη και επίσης την κοινωνική συνοχή.



## 2.4. BG

### IO1 Обобщение:

Изследването, проведено в IO1, се състоеше от кабинетно проучване, онлайн въпросни и интервюта. В първата фаза на инвентаризацията беше създадена изследователска рамка от Университета Дуисбург-Есен.

Анализът на нуждите бе извършен от всяка страна-партньор въз основа на интензивен преглед на литература (кабинетно проучване). Той показва, че креативността и иновациите се възприемат като много важен аспект във всички страни, но подходите за насърчаване на свързаните с тях компетенции, както и валидирането им, се различават между отделните страни, а дори и в самите тях. Същото се отнася и за дигиталното обучение; то се използва по някакъв начин във всички страни, но в различни степени. Употребата се увеличава, особено използването на СУО (Системи за Управление на Обучението), но през повечето време те не се използват с пълния си потенциал. Всички страни полагат усилия, но също така виждат място за подобрене в образователните предложения за креативност и иновации, специфични подходи за развитие на компетенции в областта и тяхното валидиране, както и в използването на дигитално обучение. Страните варират от доста неразвити до много прогресивни в различните аспекти.

Онлайн въпросникът бе разработен от лидера на WP (Университетът Дуисбург-Есен) в постоянен цикъл на обратна връзка с всички партньори. Всички партньори бяха отговорни за разпространението му, като на онлайн въпросника отговориха общо 423 респондента. Констатациите от проучването показват и потвърждават вече казаното в проектното предложение; хората наистина виждат необходимостта от развитие на компетенцията за креативност и иновации, ползите, които тя има за различни области от живота на хората, както и значението на валидирането на тези компетенции. Практиката, обаче, изглежда все още не е достигнала това ниво. Много от анкетираните заявяват, че се използват определени инструменти и подходи, но изглежда, че има множество различни начини и липсва единен подход, който би бил желателен, за да може да се осигури прозрачност и съпоставимост на резултатите от информалното и неформалното обучение. Също така, изглежда, че не много хора познават рамката EntreComp, която, ако това се промени, би могла да допринесе за увеличаване на практиките за валидиране на уменията, свързани с креативността и иновациите.

Бяха проведени интервюта и фокус група със съответно 37 и 27 експерти от всички страни партньори за креативността и иновации от висшето образование и бизнеса.

Идентифицираните най-големи текущи потребности от учене бяха интердисциплинарните подходи за обучение, въвеждането на съвременни висококачествени (смесени) подходи за обучение и учене, включително умения за латерално мислене, необходимостта от опит и дейности в рамките на лекции и практически учебни пространства, в които студентите могат да се включат.

Подходът, предоставен от проекта CIM, и съответните учебни интервенции се възприемат за много важни от всички респонденти. Това важи особено за модулите, свързани с дизайн мислене (Design Thinking), съвместни проекти от реалната практика и програми по



## Creativity and Innovation Management in Higher Education

предприемачество/иновации, осъществени съвместно с партньорските компании и институции.

Всички участници съобщават, че на практика не е въведен подход за валидиране, за да се оцени креативността и иновациите (като компетенции), поради което няма прозрачност в идентифицирането на компетенции и опита на кандидата, свързани с CIM-компетенциите.

### Заклучение

Прегледът, извършен през първата фаза на проекта, ясно обоснова основното предизвикателство за НИРД и хипотезите по отношение на преподаването, обучението и валидирането на управлението на креативността и иновациите. Налице е голямо търсене на нови подходи, които укрепват холистичните, ориентирани към практиката подходи за преподаване и учене във ВО за насърчаване на компетенциите на CIM, които се считат за съществени за икономическия растеж, а също и за социалното сближаване.





## 2.5. BE

### IO1 Samenvatting

Het onderzoek in IO1 bestond uit het desk research, de online vragenlijst en interviews. In de eerste fase van de inventarisatie is door UDE een onderzoekskader vastgesteld. De behoefteanalyse, is door elk partnerland uitgevoerd op basis van een intensief literatuuronderzoek (desk research). Het toonde aan dat creativiteit en innovatie in alle landen als een zeer belangrijk aspect worden gezien, maar benaderingen voor het bevorderen van gerelateerde competenties en het valideren ervan verschillen tussen landen, en zelfs binnen landen. Hetzelfde geldt voor digitaal leren; het wordt op de een of andere manier in alle landen gebruikt, maar in verschillende mate. Het gebruik is toegenomen, vooral het gebruik van LMS, maar meestal worden die niet volledig benut. Alle landen leveren inspanningen, maar zien ook ruimte voor verbetering in onderwijsaanbod voor creativiteit en innovatie, specifieke benaderingen van competentieontwikkeling in het veld en de validatie ervan, evenals in het gebruik van digitaal leren. De landen variëren van vrij onontwikkeld tot zeer vooruitstrevend in de verschillende aspecten.

De online vragenlijst is ontwikkeld door de WP leader (UDE) in een constante lus van feedback met alle partners. Alle partners waren verantwoordelijk voor de verspreiding van de online vragenlijst. De online vragenlijst werd beantwoord door 423 respondenten. De bevindingen van de enquête laten zien en bevestigen wat er al in het projectvoorstel staat; mensen zien wel de noodzaak van creativiteit en innovatie competentieontwikkeling, en de voordelen die het heeft voor verschillende gebieden van het leven van mensen, evenals het belang van de validatie van deze competenties. De praktijk lijkt dat niveau echter nog niet te hebben bereikt. Veel respondenten verklaarden dat bepaalde instrumenten en benaderingen worden gebruikt, maar het lijkt erop dat er verschillende manieren zijn en geen uniforme aanpak, wat echter wenselijk zou zijn om transparantie en vergelijkbaarheid van leerresultaten van informeel en niet-formeel leren te kunnen bieden. Ook lijken niet veel mensen het EntreComp-raamwerk te kennen, wat als dit zou veranderen, zou kunnen bijdragen aan het vergroten van validatiepraktijken van creativiteit en innovatie gerelateerde competenties.

Interviews en focusgroep interviews werden uitgevoerd met 37 en 27 experts uit alle partnerlanden over creativiteit en innovatie uit het hoger onderwijs en het bedrijfsleven. De huidige grootste leerbehoeften die werden geïdentificeerd, waren interdisciplinaire studiebenaderingen, de introductie van moderne hoogwaardige (blended) onderwijs- en leerbenaderingen, waaronder laterale denkvaardigheden, de behoefte aan ervaringen en activiteiten binnen colleges en praktische leerruimtes, waarin studenten zich kunnen engageren.

De aanpak van het CIM-project en de bijbehorende instructie-interventies werden door alle respondenten als zeer belangrijk ervaren, met name specifieke modules met betrekking tot Design Thinking, gezamenlijke real-life projecten en ondernemerschaps-/innovatieprogramma's samen met geassocieerde bedrijven en instellingen.

Alle deelnemers melden dat er nauwelijks sprake is van een validatiebenadering om creativiteit en innovatie (competenties) te beoordelen waardoor er geen transparantie is om competenties en ervaringen van een kandidaat met betrekking tot CIM-competenties te identificeren.

**Conclusie**

De inventarisatie in de eerste projectfase heeft de belangrijkste R&D-uitdaging en de hypothesen met betrekking tot onderwijs, opleiding en validatie met betrekking tot creativiteits- en innovatiemanagement geïdentificeerd. Er is een grote vraag naar nieuwe benaderingen die de holistische, praktijkgerichte onderwijs- en leerbenaderingen versterken om CIM-competenties te bevorderen. CIM-competenties die als substantieel worden beschouwd voor economische groei en ook sociale cohesie.



## 2.6. PT

## 2.7. IT

### WP1 Sommario

Le attività di ricerca condotte nel WP1 consistevano in una desk research, un questionario online e in interviste e focus group. Nella prima fase di stocktacking il partner UDE ha definito il framework di ricerca da adottare.

L'analisi dei bisogni, che è stata condotta da ciascun paese partner sulla base di un'intensa revisione della letteratura (desk research), ha dimostrato che la creatività e l'innovazione sono percepite come un aspetto molto importante in tutti i paesi, ma gli approcci per promuovere le competenze correlate, nonché per validarle, differiscono da un paese all'altro e persino all'interno dello stesso paese. Considerazioni analoghe valgono per l'apprendimento digitale; è diffuso in tutti i paesi, ma in maniera differente da paese a paese. Di fatto la sua diffusione è in aumento, con particolare riguardo all'utilizzo dei Learning Management System (LMS), ma il più delle volte questi strumenti non vengono utilizzati al massimo delle loro potenzialità. Tutti i paesi si impegnano, ma si intravedono anche margini di miglioramento nelle offerte educative legate alla creatività e all'innovazione, negli approcci specifici di sviluppo e validazione delle competenze in questo settore, nonché nell'utilizzo dell'apprendimento digitale. I paesi variano da poco sviluppati a molto progressisti in diversi aspetti.

Il questionario online è stato sviluppato dal leader del WP (UDE) in maniera ciclica tenendo in costante considerazione il feedback di tutti i partner. Tutti i partner erano responsabili della distribuzione del questionario online. Al questionario online hanno risposto 423 intervistati. I risultati dell'indagine mostrano e confermano quanto già affermato nella proposta progettuale; le persone vedono la necessità di sviluppare competenze relative alla creatività e all'innovazione e i benefici che tali competenze hanno per diversi aspetti della vita delle persone, nonché l'importanza della validazione di queste competenze. La pratica, tuttavia, sembra non aver ancora raggiunto un livello adeguato. Molti intervistati hanno affermato che vengono utilizzati determinati strumenti e approcci, ma sembra che ci sia una grande varietà di modalità e la mancanza di un approccio uniforme, che invece sarebbe auspicabile, in modo da fornire trasparenza e possibilità di comparazione dei risultati dell'apprendimento nei contesti informali e non formali. Inoltre, non molte persone sembrano conoscere il framework EntreComp, un cambiamento in questa direzione potrebbe contribuire anche ad aumentare le pratiche di validazione delle competenze legate alla creatività e all'innovazione.

Sono state effettuate interviste e focus group coinvolgendo rispettivamente 37 e 27 esperti di tutti i paesi partner sulla creatività e l'innovazione nei settori dell'istruzione superiore e delle imprese.

Le maggiori esigenze di apprendimento identificate hanno riguardato: gli approcci di studio interdisciplinari, l'introduzione di approcci moderni di insegnamento e apprendimento (blended) di alta qualità, comprese le capacità di pensiero laterale, la necessità di esperienze e attività pratiche all'interno delle lezioni, in cui gli studenti possono impegnarsi.

L'approccio fornito dal progetto CIM e dai relativi interventi formativi è stato percepito come molto importante da tutti gli intervistati, con particolare riguardo ai moduli specifici relativi al Design



Thinking, ai progetti congiunti e ai programmi di imprenditorialità/innovazione che coinvolgono aziende e istituzioni associate.

Tutti i partecipanti riferiscono che non è stato quasi mai messo in atto un approccio di validazione delle competenze relative alla creatività e all'innovazione, quindi non c'è trasparenza nell'identificare le competenze e le esperienze di un candidato relative alle competenze CIM.

#### Conclusione

Lo stocktaking effettuato nella prima fase del progetto ha motivato in modo chiaro la principale sfida di R&S e confermato le ipotesi relative all'insegnamento, alla formazione, all'apprendimento e alla validazione in materia di Creativity e Innovation Management. C'è una forte domanda di nuovi approcci che rafforzino gli approcci olistici e orientati alla pratica dell'insegnamento e dell'apprendimento nell'istruzione superiore per promuovere le competenze CIM, che sono considerate sostanziali per la crescita economica e anche per la coesione sociale.

## 2.8. LT



### 3. Online questionnaire results

#### 3.1. Introduction and statistical background data

The questionnaire was conducted from July to October 2019. The total number of respondents is 437, of which not all completed the whole questionnaire, however. The age groups show fewer respondents within the age groups < 30 (9,38%) and > 60 (9,38%). Most respondents can be found in the age groups 30-40 (22,2%), and 41-50 (21,74%). 17,39% of respondents can be found in the age group 51-60. The bars 5 and 6 (together 19,91%) in the bar chart (figure 1) refer to respondents that have not responded to this question.

Age group	Number	Percent
< 30 (A1)	41	9.38%
30-40 (A2)	97	22.20%
41-50 (A3)	95	21.74%
51-60 (A4)	76	17.39%
> 60 (A5)	41	9.38%

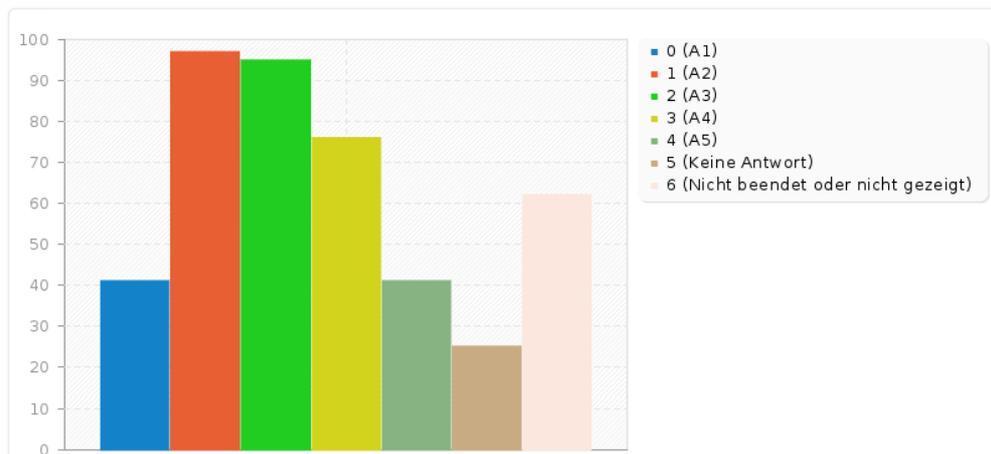
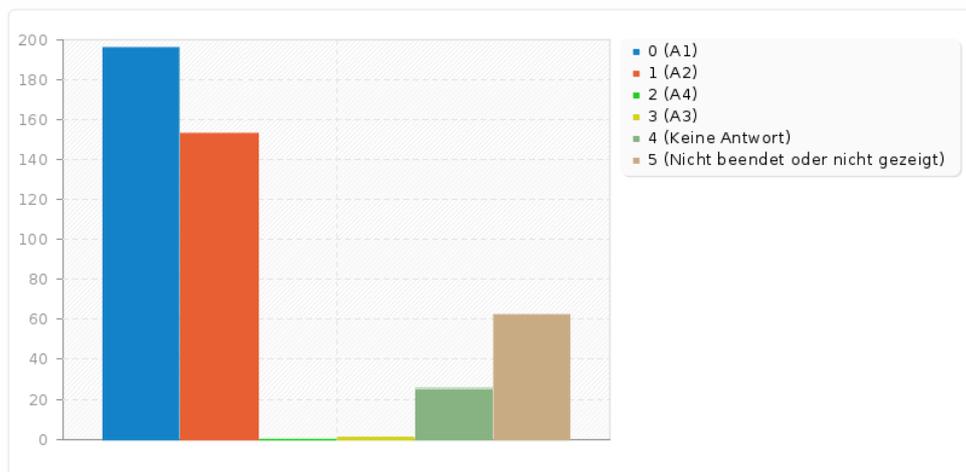


Figure 1: Age groups

Regarding the distribution of gender, it can be seen that the majority of respondents were female, which made up a total of N=196 of the sample that were female (A1) (44.85%), and N=153 that were male (A2) (35.01%). One person stated to prefer not to reveal their gender (0,23%), and 19,91% of respondents did not respond to this question.



Gender distribution

As there are nine partner countries in the CIM project, these countries are the main countries of interest for this stocktaking phase, in the table below they are marked grey, and numbers/ percentage of respondents per country can be seen. 19,91% of respondents did not answer this question.

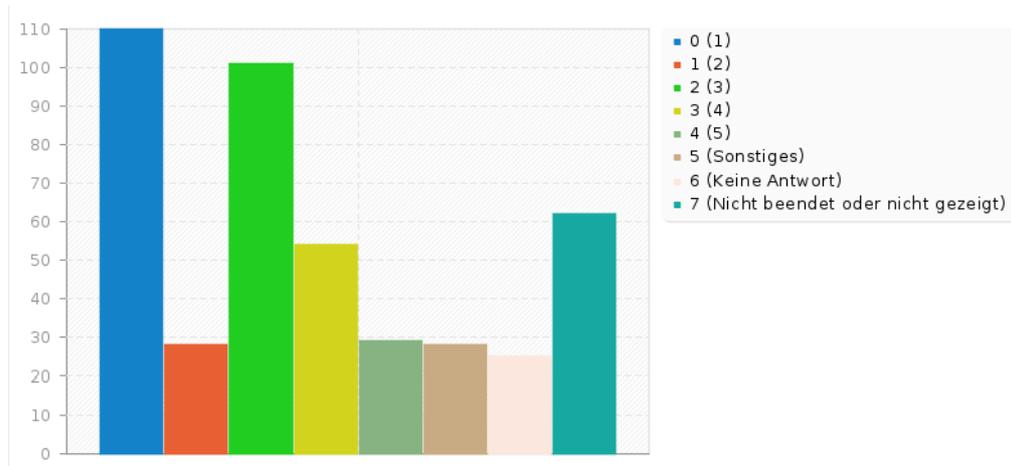
Country	Number	Percent
Austria (31)	21	4.81%
Belgium (2)	49	11.21%
Bulgaria (3)	15	3.43%
Cyprus (5)	2	0.46%
Germany (11)	66	15.10%
Greece (12)	28	6.41%
Ireland (14)	21	4.81%
Italy (15)	39	8.92%
Lithuania (17)	58	13.27%
Malta (19)	1	0.23%
Netherlands (20)	3	0.69%
Portugal (22)	42	9.61%
Slovenia (25)	1	0.23%
UK (28)	1	0.23%
Others (Canada, USA & Norway)	3	0.69%
<b>Total</b>	<b>350</b>	<b>80,1%</b>

Respondents per Country

The types of organisations that were provided as options in the questionnaire were Higher Education institution (0), Training provider (1), Company (2), Public entity (3), Non-Governmental Organisation/ Civil Society Organisation (4) and Other (5), of which most respondents stated that they work in higher education (25,17%) and companies (23,11%). 6,41% stated to work in other organisations. The chart below shows the prevalence of organisations. Numbers 6 and 7, again refer to the responses that are missing for this question.



Creativity and Innovation Management in Higher Education



Respondents per Department

The departments/faculties that respondents stated to work in are quite diverse, which provides a broad range of different fields for the database. They range from business oriented domains, to health care, education, design, to environmental studies. This information is useful in order to identify the needs of different sectors, as the project aims at developing domain independent learning modules. N=234 answered this question, which is 53,55% out of all respondents.

Regarding the role/ position within the organisations, the responses can broadly be clustered into four categories: Top executives, Management (division), Project management, and Others. N= 289 respondents answered this question, which is 66,13% out of all respondents.



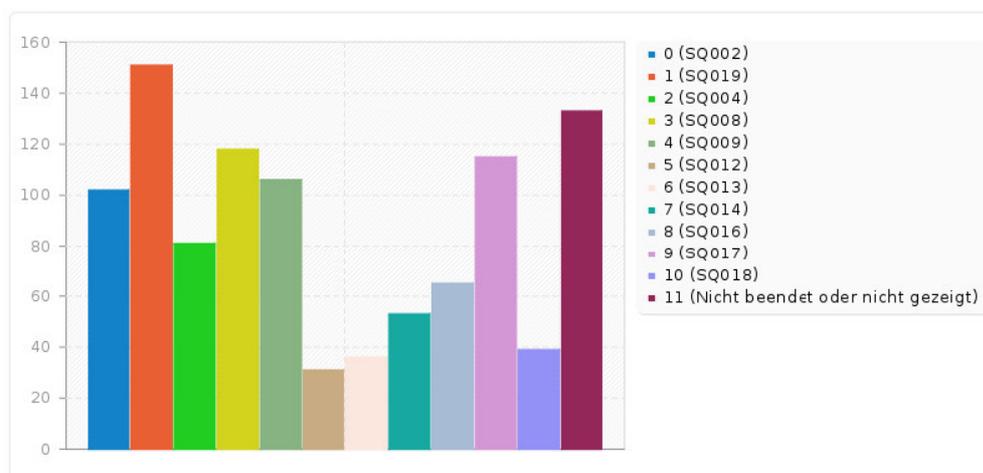
### 3.2. Understanding creativity and innovation

This section of the questionnaire regarded respondents perception of the terms creativity and innovation, and which aspects are important for both. Also, to see what creativity and innovation related aspects are important for respondents’ work, a question was asked regarding this.

Respondents were asked to rate aspects according to the importance for their own work. The options that the respondents were given are as follows:

1. Constantly develop new ideas (0)
2. Develop better solutions to existing and new challenges (1)
3. Experiment with innovative approaches that are new to me (2)
4. Think visionary to turn ideas into action (3)
5. Identify needs and challenges that need to be met (4)
6. Assess the consequences and costs of my ideas (5)
7. Manage all resources to turn ideas into action (6)
8. Make the most of limited resources (7)
9. Inspire and enthuse relevant stakeholders (8)
10. Work together and co-operate with others to develop ideas and turn them into action (9)
11. Adapt to unforeseen changes (19)

All of the options received the highest number of selections in the category “Very important”, followed by “Rather important”, which suggests, that all of the above-mentioned aspects seem to be quite important for many people. When combining the “Very important” and “Rather important” answer categories, the options that received the highest number of responses in these two were “develop better solutions to existing and new challenges” (N=265), followed by “identify needs and challenges that need to be met” (N=262), and “work together and co-operate with others to develop ideas and turn them into action” (N= 257). The option with the lowest score was “experiment with innovative approaches that are new to me” (N=209).



Important aspects for innovation (%)



The bar chart shows the results of the respondents rating the three most important of above-mentioned aspects for being innovative. 151 respondents selected “develop better solutions to existing and new challenges”, which makes 34,55% of all respondents, followed by 118 that selected “think visionary to turn ideas into action”, which are 27% of all respondents, and lastly 115 that selected “work together and co-operate with others to develop ideas and turn them into action”, which are 26,32% of all respondents, as can be seen in the bar chart below (Number 11 in the bar chart shows the respondents who did not answer this question).

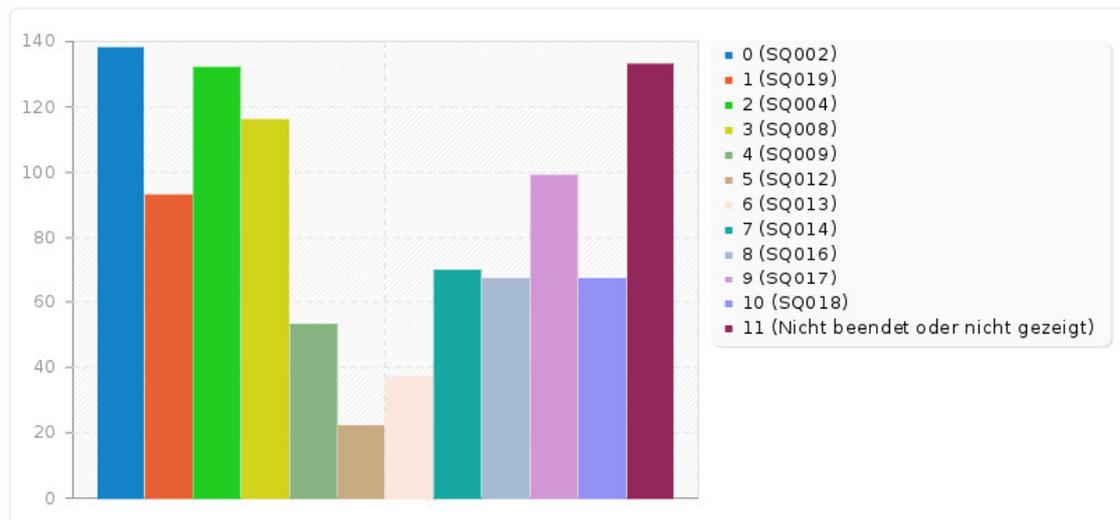
The same aspects were rated by respondents in regard to creativity. “Constantly develop new ideas” (31,58%), “experiment with innovative approaches that are new to me” (30,21%), and “think visionary to turn ideas into action” (26,54%) were the three most important ones for creativity.

### Important aspects for innovation

Aspects	Number	Percent
Constantly develop new ideas (SQ002)	102	23.34%
Develop better solutions to existing and new challenges (SQ019)	151	34.55%
Experiment with innovative approaches that are new to me (SQ004)	81	18.54%
Think visionary to turn ideas into action (SQ008)	118	27.00%
Identify needs and challenges that need to be met (SQ009)	106	24.26%
Assess the consequences and costs of my ideas (SQ012)	31	7.09%
Manage all resources to turn ideas into action (SQ013)	36	8.24%
Make the most of limited resources (SQ014)	53	12.13%
Inspire and enthuse relevant stakeholders (SQ016)	65	14.87%
Work together and co-operate with others to develop ideas and turn them into action (SQ017)	115	26.32%
Adapt to unforeseen changes (SQ018)	39	8.92%
Nicht beendet oder nicht gezeigt	133	30.43%

### Important aspects for creativity

Aspects	Number	Percent
Constantly develop new ideas (SQ002)	138	31.58%
Develop better solutions to existing and new challenges (SQ019)	93	21.28%
Experiment with innovative approaches that are new to me (SQ004)	132	30.21%
Think visionary to turn ideas into action (SQ008)	116	26.54%
Identify needs and challenges that need to be met (SQ009)	53	12.13%
Assess the consequences and costs of my ideas (SQ012)	22	5.03%
Manage all resources to turn ideas into action (SQ013)	37	8.47%
Make the most of limited resources (SQ014)	70	16.02%
Inspire and enthuse relevant stakeholders (SQ016)	67	15.33%
Work together and co-operate with others to develop ideas and turn them into action (SQ017)	99	22.65%
Adapt to unforeseen changes (SQ018)	67	15.33%
Nicht beendet oder nicht gezeigt	133	30.43%



*Important aspects for creativity*

As opposed to the terms creativity and innovation being used synonymously, as it is found in some sources, the results show that respondents do distinguish between creativity and innovation, with some overlaps, as some aspects can be applied to both creativity and innovation. As can be seen in figure 4 and 5, results show different emphases on aspects depending on whether it is allocated to creativity or innovation.



### 3.3. Creativity and innovation related competences

In order to understand respondents' perception of competences that are required to be creative or innovative, respondents were asked to rate the following competences on a five-point scale from 1="Not important at all", to 5="Very important" for creativity and for innovation separately:

- Taking initiative
- Entrepreneurial mindset
- Ethical and sustainable thinking
- Networking
- Flexibility/adaptability
- Communication
- Problem-solving
- Financial and economic literacy
- Leadership
- Decision Making

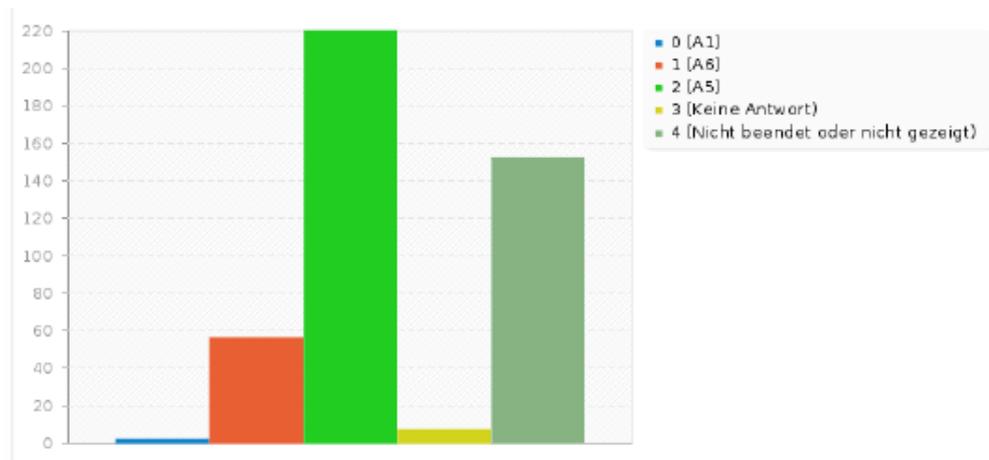
The results show that for innovation, only one of the competences (financial and economic literacy) received the highest number of selections in the category "rather important". All other competences received the highest number of selections in the category "very important". For creativity it can be said, that respondents selected problem-solving most frequently, which indicates that respondents see problem-solving as very crucial for creativity, and most important compared to the other competences. This shows the way creativity and innovation are viewed by respondents; which seems to put innovation as the overall context, which creativity is included in. All competences are important, however for creativity, not all competences are required.

Other aspects were named by respondents beside the options that were provided to choose from are for instance resilience and persistence, confidence and authenticity, an open mind for creativity, and unconventional thinking for innovation. It should be noted that these are not necessarily competences, but still they are important aspects to consider when talking about being creative and innovative.

In regard to what parts of life creativity and innovation related competences are most important, respondents rated the following (0=Not important at all, 1=Moderately important, 2=Very important, 3=No answer, 4=Not finished this question):

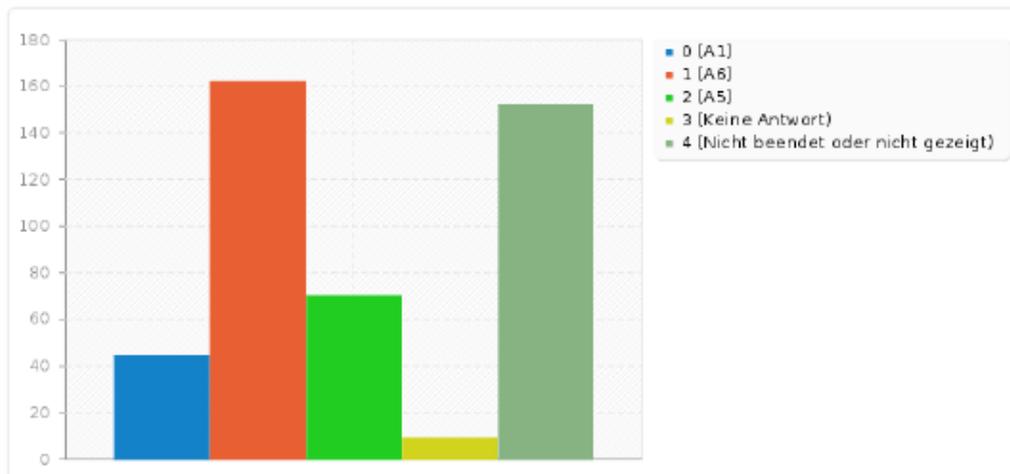


**Personal development**



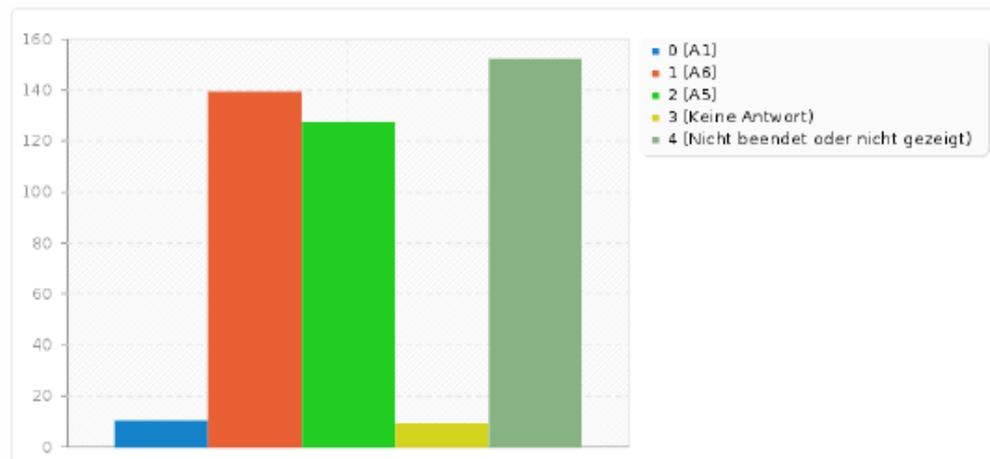
*Importance of creativity and innovation for personal development*

**Success in formal education**



*Importance of creativity and innovation for success in formal education*

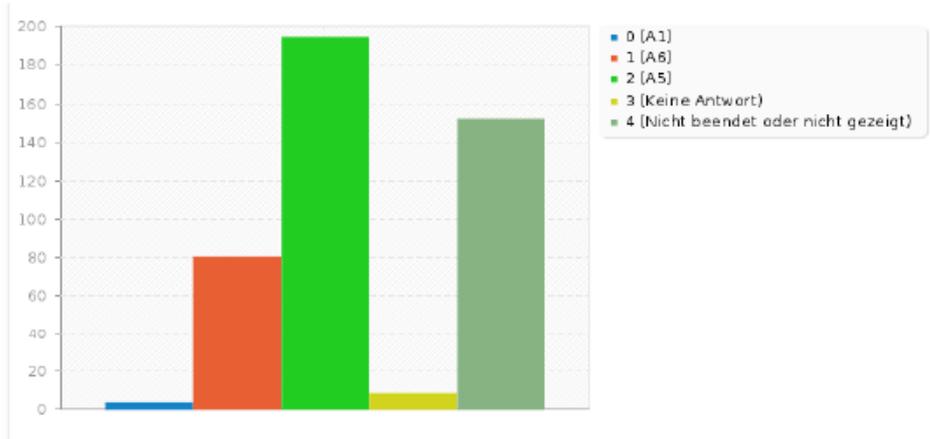
**Success in non-formal or informal education**



*Importance of creativity and innovation for success in non-formal and informal education*

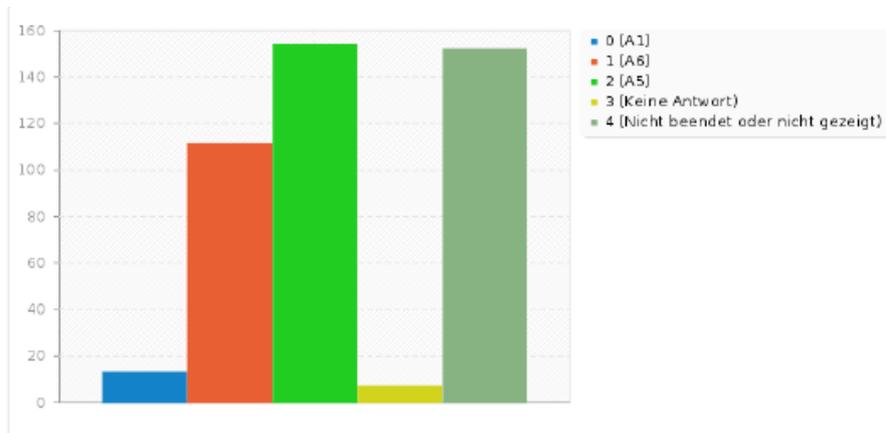


**Employability**



*Importance of creativity and innovation for employability*

**Further Career development**



*Importance on Career Development*

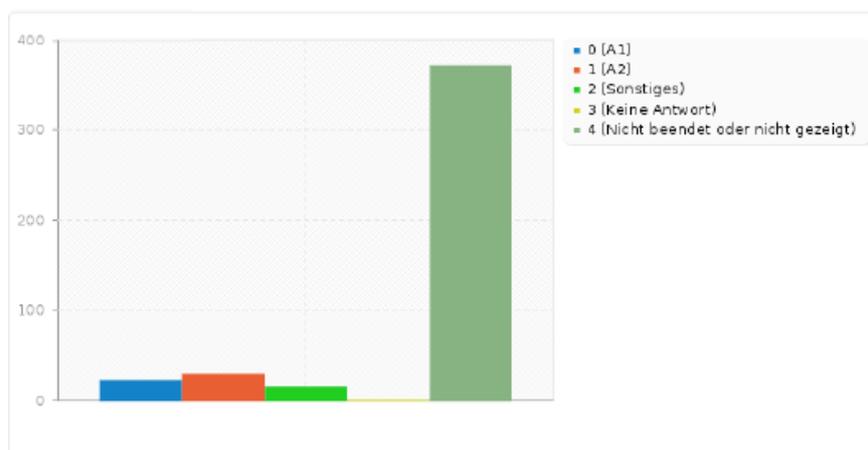
The results show that there are different emphases that respondents put on the different areas. It can be seen that “Personal development” and “Further Career development” show a high number of respondents that indicated it is very important compared “Moderately important” and “Not important at all. It seems like creativity and innovation is views as less important for formal education. This shows that the degrees of formality of formal education and rather informal nature of creativity and innovation seem to be seen as contradicting each other. This confirms what has been stated in the application, which is that creativity and innovation have not received much acknowledgement in contexts of formal education, including of course higher education. These competences seem to be more seen as work-related, or personal, which always is to a varying degree non-formal, or informal. This underlines the importance of implementation of creativity and innovation related competences in higher education, and formal education in general.

Another finding that confirmed what has been stated in the project proposal is that most respondents stated that there is no creativity and innovation management in their organisation. It has to be noted here that over 35% of respondents did not give an answer for this question, and another 12,81% were uncertain. But the number of respondents stating there is no CIM is still double the size of the number that stated that there is an existing CIM.



CIM Implementation in organisation	Number	Percent
Yes (A1)	66	15.10%
No (A2)	158	36.16%
Uncertain (A3)	56	12.81%
Keine Antwort	5	1.14%
Nicht beendet oder nicht gezeigt	152	34.78%

Out of the respondents that stated to have a creativity and innovation management, N=22 stated to have a dedicated position responsible for CIM, N=29 stated that it is part of someone’s responsibility, and N=15 stated it is regulated in a different way in their organisation, for instance it is management by external entity, or that it is implemented throughout the organisation. As can be seen in the chart below, these numbers are relatively low (blue, orange, green bars), as most respondents stated before to not have CIM, that they were unsure, or they did not answer this question.

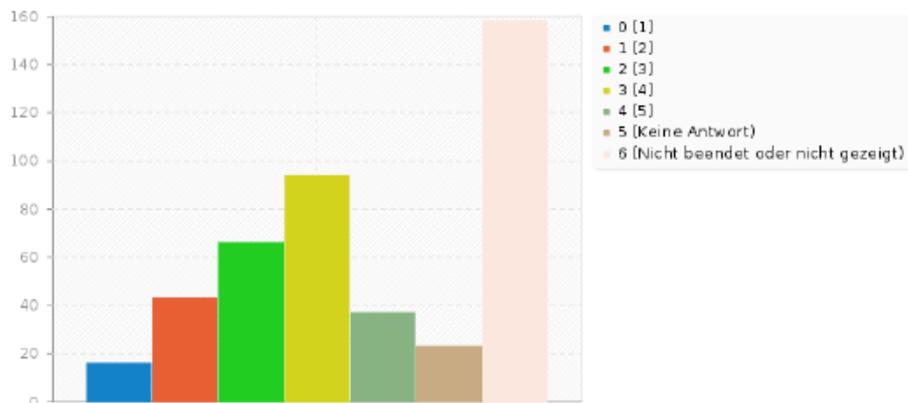


How is CIM organised?



### 3.4. Acquisition of creativity and innovation related competences

When asked about the degree that the organisation promotes creativity and innovation related competence acquisition and development, most respondents stated that it is promoted to a “rather strong” degree (N=94; 36,72% of all respondents), which can be seen in the bar chart below. This shows that even in organisations where creativity and innovation is not necessarily managed, people still see efforts in their organisations that are made to promote competence development.



*Degree of promotion of competences*

The approaches that are used to achieve this, differ. Respondents were given options to choose from:

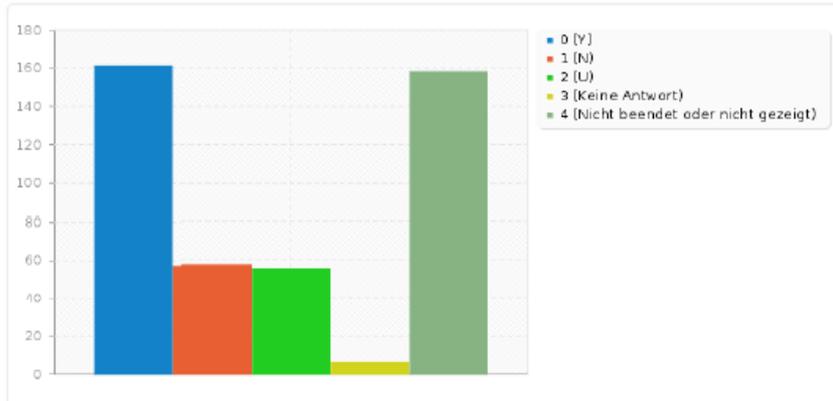
- Internal career development (such as training modules for students/trainees/employees)
- Training from external providers
- Bachelor's degrees related to creativity and innovation (or other undergraduate courses)
- Master's degrees related to creativity and innovation (or other graduate courses)
- Placements/Traineeships within businesses
- Job shadowing in other companies



Creativity and Innovation Management in Higher Education

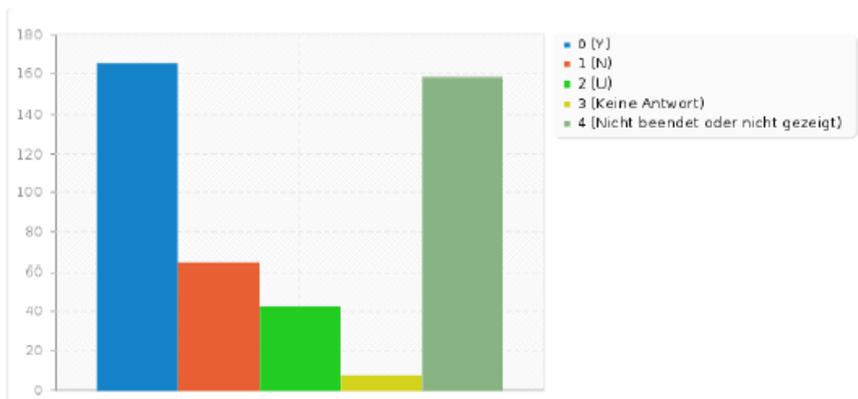
Internal career development received a high number of agreements, that this is a way to promote competence development in organisations, as well as training from external training providers (figures 8& 9; 0=Yes, 1=No, 2=Uncertain, 3+4=No answer).

Internal career development: Yes= N=161; No= N=57; Uncertain=N=55; No answer= N=164



Internal career development

Traning from external providers: Yes=N=165; No=N=64; Uncertain= N=43; No answer=N=165)

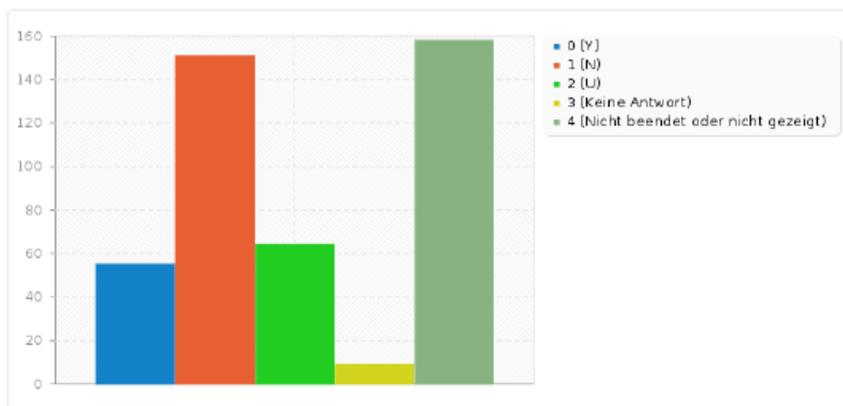


Training from external providers



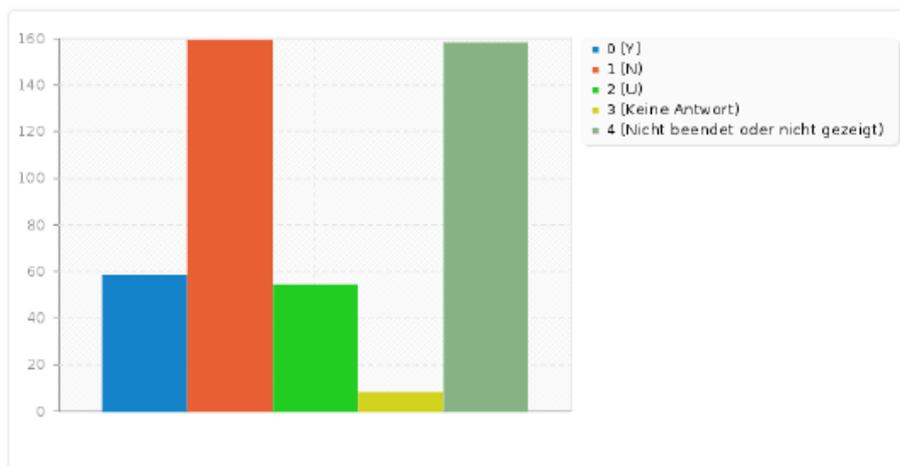
The way of using degree courses for competence development was not given as much agreement, which again shows, that it seems to be challenge to bring together formal education and intended non-formal and informal learning. Similar distributions of responses can be seen between undergraduate and graduate courses.

Undergraduate degrees: Yes=N=55, No=N=151; Uncertain=N=64; No answer=N=167)



*Undergraduate degrees*

Graduate degrees: Yes=N=58; No=N=159; Uncertain= N=54; No answer= N=166



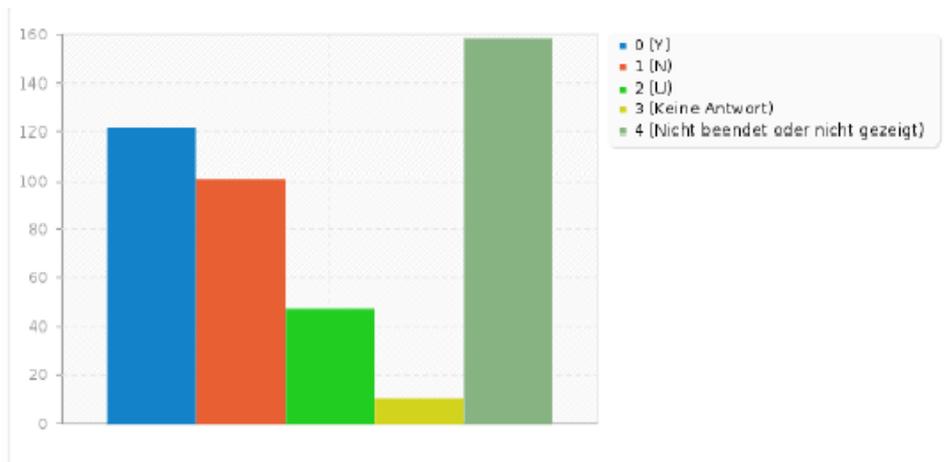
*Graduate degrees*



Creativity and Innovation Management in Higher Education

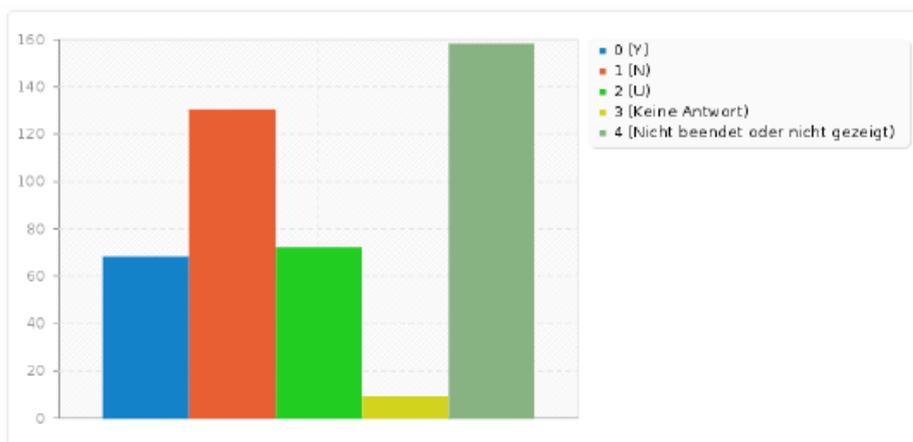
Placements or Traineeships seem to be quite common, even though the number of agreement and disagreement seem close to equal, as can be seen in the bar chart below. Job shadowing is way of competence acquisition and development that is carried out by some organisations, however the number of organisations that do not use this exceeds the number of organisations that do use it.

Traineeships/placements: Yes= N=121; No=N=101, Uncertain= N=47; No answer= N=168



Traineeships/Placements

Job-shadowing in other companies: Yes=N=68; No= N=130; Uncertain= N=72; No answer= N=167



Job-shadowing in other companies

Other ways that were named by respondents as ways to promote acquisition and development of creativity and innovation related competences were for instance workshops, brain storming, 5-whys, fishbone, data analytics, video analysis, rapid prototyping, design thinking, kepner-tregoe, just to name a few.

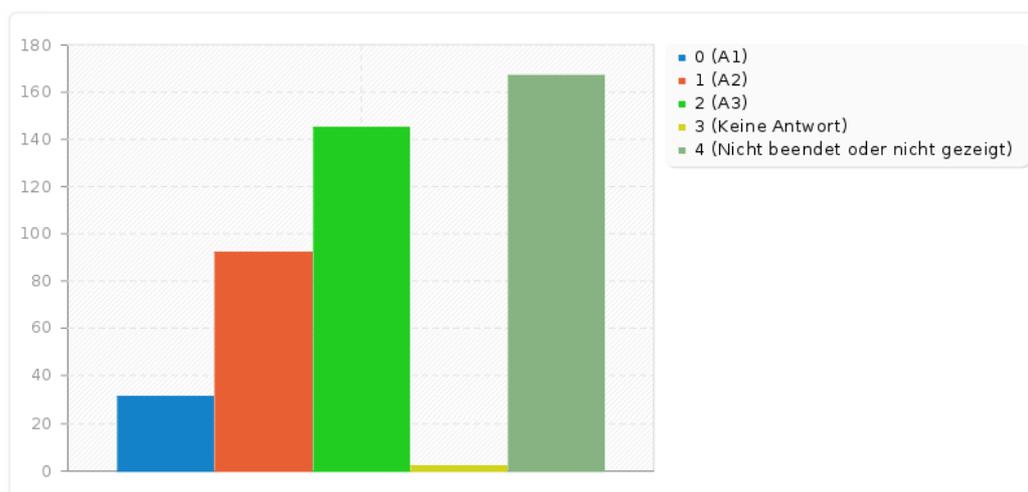


### 3.5. Assessment and recognition of creativity and innovation related competences

Regarding the validation of the above-mentioned competences, when respondents were asked to rate how important they personally find the validation of these competences, results show that many do allocate a high degree of importance to validation. A 5-point-scale was used from 1="Not important at all" to 5="Very important". As can be seen, the highest number of respondents can be found with number 4="Rather important", followed by number 5. This shows, that people do put an emphasis on the validation of creativity and innovation related competences.

Importance of validation	Number	Percent
1 (1)	6	2.31%
2 (2)	15	5.77%
3 (3)	46	17.69%
4 (4)	119	45.77%
5 (5)	74	28.46%
Keine Antwort	10	2.29%
Nicht beendet oder nicht gezeigt	167	38.22%

The question about the actual implementation of validation of those competences within organisations show different results, however: 33,18% of respondents never validate these competences (green in bar chart). 28,14% do validate sometimes (orange) or always (blue). It should be noted however that nearly 40% of respondents did not answer this question.



Validation in organisations

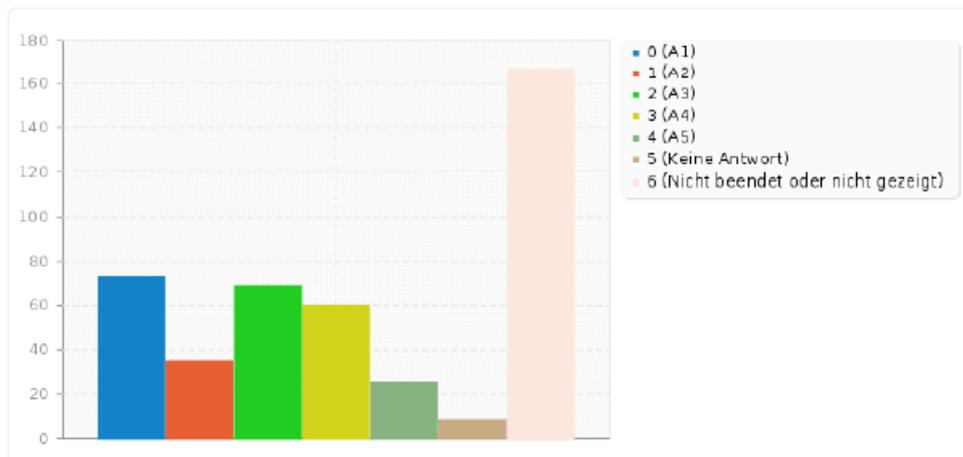


This shows that besides a high importance that people give to validation, the actual practice of validation does not necessarily reflect that. This supports the findings of the desk research, where almost all countries deemed validation important, and made efforts to promote the practice of it, but have not yet found the ideal way to implement it.

The methods and approaches for validation and the tools that have been developed are diverse, as has been discovered in the desk research as well. Tools that respondents mentioned that are used in their organisations are for instance portfolios, self-/peer-assessment, or assessment by experts. The results of the questionnaire show that most respondents (N=151) stated not to use any framework for validating, compared to N=28 that do use a framework. Those who do use one, mentioned for instance the EntreComp framework, as well as the National Qualifications Framework (NQF). Looking closer at what European competence frameworks respondents know it can be seen, that the EntreComp framework does not seem to be very common. Only N=44 people stated to know it, compared to N=216 who do not. Looking at how many people have actually used it, the result shows that only N=14 respondents stated to have ever used it. The Key Competence Framework for Lifelong Learning is known by N= 151 respondents, compared to N=112 who do not know it. However, focusing on the use of this framework, N=185 stated to not have used it, compared to N=48 respondents that have. The results of the knowledge and usage of the European frameworks show that the use is quite low, even though some are known by many people.

When asking respondents about the ways they use to assess their employees'/trainees'/students' competences regarding creativity and innovation, five options were provided for respondents to rate how often they use them. This was rated on a five-point scale from 1="Never" to 5="Always".

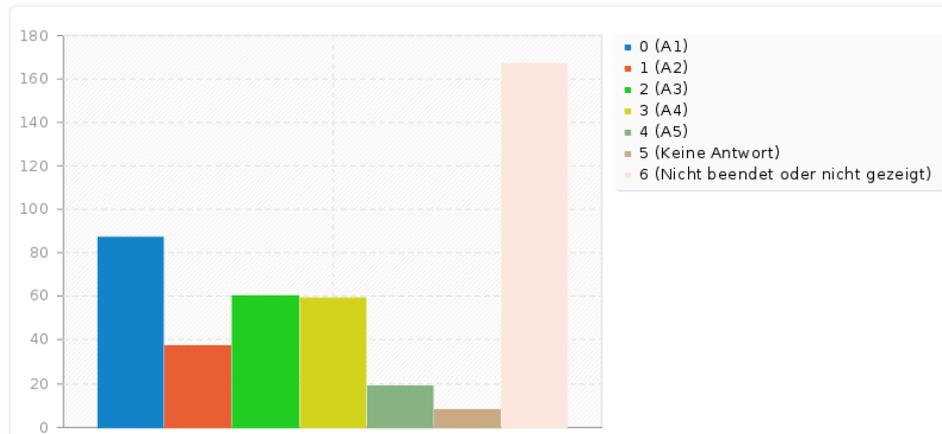
**Self-assessment by the students/employees themselves**



Self-assessment

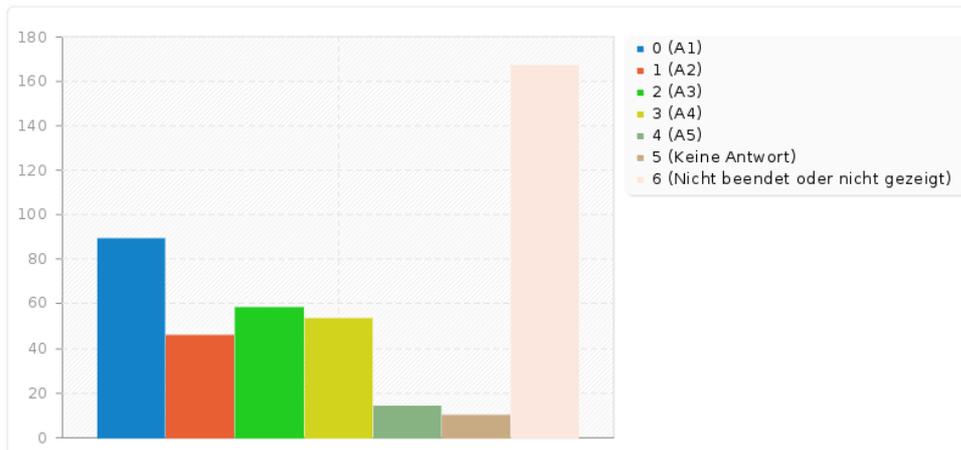


**Peer-to-peer-assessments**



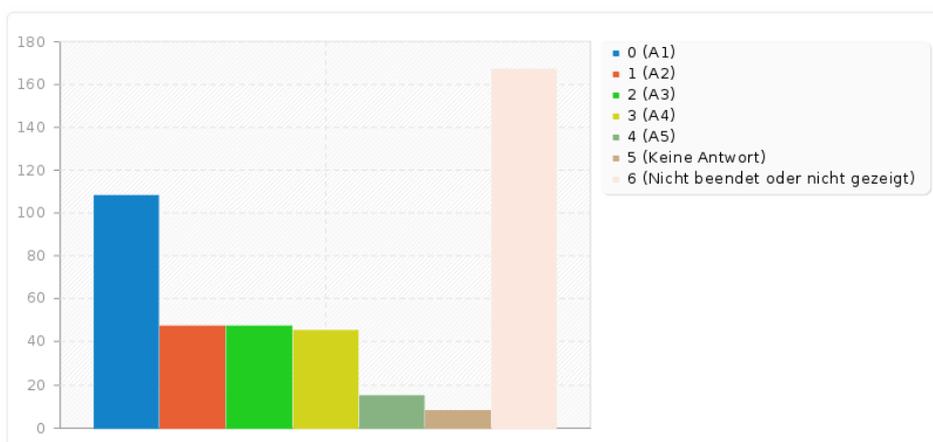
*Peer assessment*

**Observation of facilitators/mentors**



*Observation by facilitator*

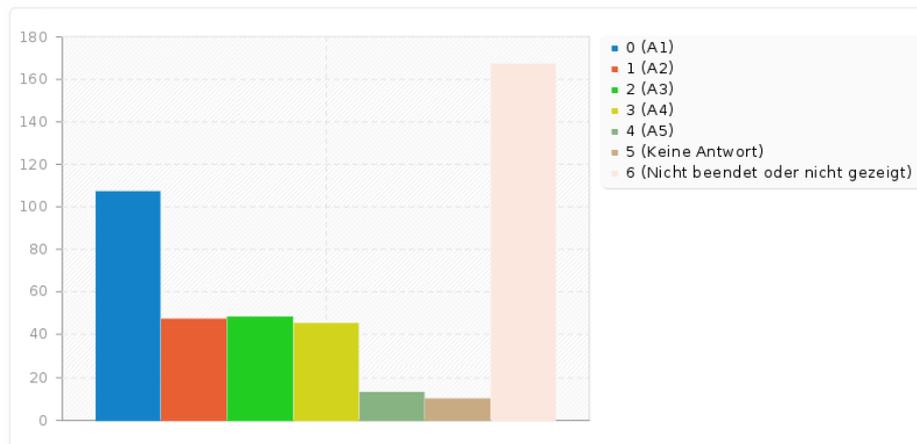
**Interactive methods (simulation, role plays...)**



*Interactive methods*



**Online tools**



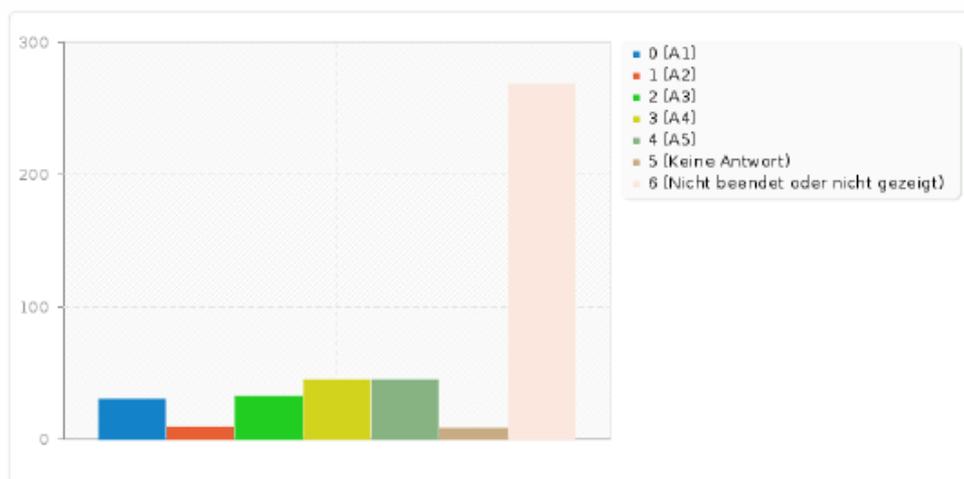
*Online tools*

The findings show that in all options the highest number of responses was received in the “Never” category. Comments that were made by respondents showed that all of the mentioned assessment methods are used in some organisations, but not regarding creativity and innovation, and that these competences are seen as personal traits, than competences.



### 3.6. Digital learning

Digital learning, however, seems to be quite common in organisations. The number of people that stated to use digital learning (N=169) was nearly double compared to the number of people who do not (N=98). However, when comparing this to the results of the actual use of digital learning, it can be seen that, again, almost all options received the highest number of respondents with “Never”. This does not apply for “LMS”, which show a relatively high number of respondents that stated “Often” or “Always” (combined N=90), which can be seen in the bar chart below.



Use of LMS (e.g. Moodle)

The following tables show the results of the other tools that respondents rated.

Use of E-Portfolios	Number	Percent
Never (A1)	65	14.87%
Seldom (A2)	13	2.97%
Occasionally (A3)	40	9.15%
Often (A4)	25	5.72%
Always (A5)	12	2.75%

Use of Blogs	Number	Percent
Never (A1)	54	12.36%
Seldom (A2)	18	4.12%
Occasionally (A3)	42	9.61%
Often (A4)	32	7.32%
Always (A5)	11	2.52%



Use of Wikis	Number	Percent
Never (A1)	65	14.87%
Seldom (A2)	24	5.49%
Occasionally (A3)	31	7.09%
Often (A4)	28	6.41%
Always (A5)	8	1.83%

Use of MOOCs	Number	Percent
Never (A1)	71	16.25%
Seldom (A2)	19	4.35%
Occasionally (A3)	39	8.92%
Often (A4)	18	4.12%
Always (A5)	7	1.60%

Additional tools that respondents mentioned were webinars/web-based trainings, podcasts, TED talks, or the intranet of the organisation. Looking at digital learning that connects to validation tools, however, shows that N=123 do not use any, compared to N=46 who do. The tools that were mentioned most by the ones who do use them were Moodle and E-portfolios.

The findings of the survey show and confirm what has been stated in the project proposal already; people do see the need for creativity and innovation competence development, and the benefits it has for different areas of peoples' lives, as well as the importance of the validation of these competences. The practice, however, seems to not have reached that level yet. Many respondents stated that certain tools and approaches are used, but it seems like there is a variety of different ways and no uniform approach, which would be desirable to be able to provide transparency and comparability of learning outcomes of informal and non-formal learning. Also, not many people seem to know the EntreComp framework, which if this changed could contribute to also increasing validation practices of creativity and innovation related competences.



## 4. Interviews/Focus Groups

### 4.1. Description, objectives, procedure & key questions

#### 4.1.1. Description and objectives

Focus groups are collective and interactive interviews, usually with people from a common background. Advantages in conducting focus groups lie in the possibility to reconstruct subjective everyday experiences and to generate hypotheses on previously little researched or complex issues. The focus groups of interest for the project CIM were experts from Higher Education and experts from Business sector from various European countries. The interviews refer to the following investigation questions:

- Why is creativity and innovation management so important?
- Which learning approaches promote competences in creativity and innovation management and how are they validated and certified?
- How do these approaches differ between the focus groups Academia, Business and between member states of the EU?

Further objectives of the focus groups were to deepen the findings of the online questionnaire and given that, to continue the project work on a robust base, which is defined by quantitative and qualitative analysis.

#### 4.1.2. Procedure and selection of focus group participants

Project partners have been informed about the meaning and purposes of focus groups during our meeting in Thessaloniki (presentation is to be found in annex 1) and discussed the next concrete steps together. Each project partner of CIM had the task to invite 2 English-speaking experts, one from the field Higher Education and one from Business. A standardized invitation template (annex 2) was provided by the leading partner of work package one. The experts should meet the following selection criteria:

Experts from Higher Education Institutions (HEI) should

- have least **2 year professional experience** in the Higher Education sector
- have an **affinity** towards Creativity and Innovation
- **Examples:** Lecturers, professors, scientific staff, curriculum designer, etc.

Experts from Business practice should

- have at least **2 year of main activity** in the business sector
- work in companies with at least 5 employees.
- have an **affinity** towards Creativity and Innovation
- **Examples:** CEOs, department heads, HR-professionals, innovation or project manager, participant of talent programs, learners, etc.



The final selection of experts even exceeded the abovementioned criteria. Focus group participants could choose their preferred appointment option out of two offered options for each focus group (via Doodle). The interviews took place virtually, via the online meeting portal Zoom and were recorded, in order to transcript and evaluate the interview as part of a qualitative content analysis. The participants were ensured that the data will be treated absolutely anonymously. The final interviews lasted about 60 to 80 minutes.

The interest in participation from the side of the experts was high since they saw it as an opportunity to exchange ideas and best practices about creativity and innovation management in different European countries.

### 4.1.3. Key interview categories

- Current biggest learning needs within Higher Education / the organization
- Perceived importance of creativity and innovation competences and management within the organisation/at European/national level
- Concept of creativity and innovation
- Instructional interventions to address creativity and innovation competences & environment
- Validation & assessment of creativity and innovation competences
- Competence recognition / certification

### 4.1.4. Interview guide template (extract):

The interviews were carried out along a standardized pattern (interview guide).

The complete interview guide can be found in deliverable 1.2.

64 interviews were carried out in four focus group interviews, clustered in interviews of HE and Business experts.

Focus Group Interview Guide																								
<b>Section 1 – General information</b>																								
xxxPartner																								
Location of the focus group																								
Date of the focus group	2019-10-																							
Number of participants																								
<b>Section 2 – Interview guide / questions</b>																								
a) FOCUS GROUP EUROPEAN LEVEL																								
Start & brief round of introduction																								
<p>Welcome and thank you for participating in this focus group interview. Before we continue, I will ask you to please inform me during this interview, if any question or any term is not clear. Please let me inform you again that this interview is going to be recorded. The interview will be evaluated as part of a qualitative content analysis and treated absolutely anonymously. Conclusions about you as a person are not possible. If anybody is not okay with that, please inform me now.</p> <p>In the following interview we talk about two competences that are seen as crucial for employability, human capital and competitiveness by the European Commission: creativity and innovation. I have prepared a few questions that relate to your understanding and concept of these competences, their promotion and assessment. The interview will last about one hour, plus or minus 10 minutes.</p> <p>Before we start, there are some ground rules to consider. First, please not that there are no right or wrong answers, everyone's opinion counts and shall be freely expressed. It would be great if participants do not interrupt each other, one person at a time. Okay, now that everyone in this round introduce themselves briefly with their name, main responsibilities as well as expert fields. Who wants to begin?</p>																								
Research category	Question	Sub question(s)	Path: If answer is...																					
General needs analysis	Let's start with a more general question: Where do you see the current biggest learning needs on European level?	Would you say, there are differences in this point between member states of Europe?																						
<table border="1"> <tr> <td> <p>Would you say that an entrepreneurial mindset is crucial to meet the current challenges of Europe?</p> </td> <td> <p>To focus more on your country, are people being motivated to start an innovative business?</p> <p>Are they interested themselves in starting an own business?</p> </td> <td> <p>Why? Why not?</p> </td> </tr> <tr> <td> <p>Which resources are provided by the EU to promote Creativity and Innovation (incl. time, funding, information &amp; materials)?</p> </td> <td> <p>When you think of your country, which of these resources are being used mostly? Are they known by the people?</p> </td> <td></td> </tr> </table> <p>In the following, we are going to exchange our ideas regarding Creativity and Innovation as constructs. Here we focus on each construct separately. Please remind to always refer your answers to one of the two competences.</p> <table border="1"> <tr> <td> <p>Do you think, Creativity can be taught?</p> </td> <td> <p>What about innovation? Do you think innovation can be taught?</p> </td> <td> <p>If no, why not? Asking other experts in focus group.</p> </td> </tr> <tr> <td> <p>What (pre-)knowledge, skills and attitudes are advantageous for the development of creativity competences?</p> </td> <td> <p>What about innovation? What (pre-) knowledge, skills and attitudes are advantageous for the development of innovation competences?</p> </td> <td></td> </tr> <tr> <td> <p>Which subcompetences related to creativity should be considered?</p> </td> <td> <p>Which subcompetences related to innovation should be considered?</p> </td> <td></td> </tr> </table> <p>Now I am curious to see which learning approaches and methods you regard as promoting the acquisition of creativity as well as innovation competences in a targeted way. Please remind to always refer your answers to one of the two competences.</p> <table border="1"> <tr> <td> <p>First in general: Which "state of the art" instructional/learning methods are used in your country for competence development? (at both university and business level)</p> </td> <td></td> <td></td> </tr> <tr> <td> <p>Are creativity competences promoted in your specific organisation?</p> </td> <td> <p>If yes, how exactly? Do you use more formal, non-formal or informal learning approaches?</p> </td> <td></td> </tr> </table>				<p>Would you say that an entrepreneurial mindset is crucial to meet the current challenges of Europe?</p>	<p>To focus more on your country, are people being motivated to start an innovative business?</p> <p>Are they interested themselves in starting an own business?</p>	<p>Why? Why not?</p>	<p>Which resources are provided by the EU to promote Creativity and Innovation (incl. time, funding, information &amp; materials)?</p>	<p>When you think of your country, which of these resources are being used mostly? Are they known by the people?</p>		<p>Do you think, Creativity can be taught?</p>	<p>What about innovation? Do you think innovation can be taught?</p>	<p>If no, why not? Asking other experts in focus group.</p>	<p>What (pre-)knowledge, skills and attitudes are advantageous for the development of creativity competences?</p>	<p>What about innovation? What (pre-) knowledge, skills and attitudes are advantageous for the development of innovation competences?</p>		<p>Which subcompetences related to creativity should be considered?</p>	<p>Which subcompetences related to innovation should be considered?</p>		<p>First in general: Which "state of the art" instructional/learning methods are used in your country for competence development? (at both university and business level)</p>			<p>Are creativity competences promoted in your specific organisation?</p>	<p>If yes, how exactly? Do you use more formal, non-formal or informal learning approaches?</p>	
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#### Interview template





## 4.2. Results - Focus group Higher Education Institutions

### 4.2.1. Participants

A total of 11 participants took part in the focus group interviews for the higher education sector. The countries represented were Portugal, Germany, Belgium, Italy, Greece, Lithuania and Ireland. All participants deal with creativity, innovation, entrepreneurship and related issues in their professional lives at Higher Education sector. In the following the results are presented along the different interview categories.

### 4.2.2. Current biggest learning needs

Participants agreed on the following needs within Higher Education: Courses are too subject-specific and not interdisciplinary, in consequence students lack of lateral thinking skills; need of experiences and activities within lectures, in which students can engage themselves; at the moment students most often receive and repeat information; need of multiple interdisciplinarity and multidisciplinary skills; need for flexibility to switch from logical thinking to creative thinking; creative thinking as most important factor is missing and should be added into lectures; students have to be prepared to the requirements of the labour market room; therefore a stronger link between activities between studies and real problems in the labour market is needed; humour and play, to gain abstraction competency and pattern recognition; perspective changing; perseverance skills and error tolerance; mindfulness by focusing on the right here and right now; social skills like teamwork and working in collaboration; critical thinking and critical problem solving, logics; sustainable thinking.

One participant mentioned the list of world economic forum as a great list on skills that are needed for the future. These are for example complex problem solving, critical thinking, creativity, people management, emotional intelligence and so on (Future of Jobs Report, World Economic Forum, 2019).

### 4.2.3. Perceived importance of CIM

An indicator for the perceived importance of creativity and innovation within the institutions are the invested resources available to promote CIM (time, funding, information, materials). Resources also belong to the environmental factors named by "KEYS" (Amabile, Conti, Coon, Lazenby & Herron, 1996), that have a direct influence on creativity in organisations.

The efforts and resources used varied greatly in some cases. For instance, open lectures that deal with the question how to promote IT involvement in the learning session are offered within a university, which shows that they attach importance to digitally supported learning. Other participants mentioned that innovative learning outcomes like podcasts, videos creating should be fostered. Also, the participation in the CIM program was considered as effort to invest in that topic. The investments of towns (here: Antwerp), that promote student entrepreneurship and various entrepreneurship programs were mentioned, too. Some participants on the other side commented that there are only few efforts/investments in that direction, mostly master's and bachelor's degrees ("Artificial intelligence" in Belgium, Master & Bachelor on "Management of innovation" in Italy, Master "Innopreneurship" in Germany).



One participant told of a specific unit responsible for spotting new online courses and materials for more creative lectures and the promotion of further e-learning and b-learning methodologies. Further resources mentioned, are the planned implementation of a design factory, specific courses on entrepreneurship and innovation, joint real-life projects and entrepreneurship/innovation programs together with associated companies and institutions, entrepreneurship competitions.

#### 4.2.4. Concept of creativity and innovation

All participants agreed that *creativity* can be taught, most of them agree on the fact that every human being is creative and that facilitators can enable people to be creative. They observe that students come up with innovative ideas after being taught for creativity. But it depends on the trainer whether he or she uses innovative teaching strategies or not. Another participant (psychologist) sees creativity as a trait which is highly connected with openness for experiences, so it increases with life-long learning activities. Participants also agree that the degree to what, the subject in what, the time it takes and also the outcome of innovation, differs between students. One participant is of the opinion, that despite teaching efforts, not every student will be creative or innovative at the end. It has to be considered that there are also students or people that avoid themselves to be creative or think they do not need to, preferring to commit functional functions. Another participant agrees on the fact that students differ, when creativity is only viewed as ideating and coming up with exploring possibilities. But creativity has three more faces: clarifying the question, selecting and building a solution on the basis of the ideating phase and then promoting and implementing those ideas. During all this stages, different types of creativity are required. So – according to this expert - people can contribute to the creative process by using their individual strengths in different creativity settings/phases.

Referring to *innovation* as a skill that can be taught or not, participants again agreed that it can be taught. Innovation would be more about teaching entrepreneurship skills, which face the challenge that people need to be helped to take risks, which is of major importance. While creativity is seen as a broad concept, innovation turns to a more specific, field-related direction. One participant used the metaphor of many loops between creativity and innovation, which can be understood as two

#### 4.2.5. Instructional interventions to address CIM

The following approaches suitable for creativity and innovation competences were mentioned most often by the interview participants: Project-based learning, design sprints and design thinking approach, action-oriented learning, experiential learning cycle (Kolb, 1984), effectuation approach, hackathons, in which students solve real life projects and challenges companies face; internships, learning by doing, recruitment of multidisciplinary teams; providing small amount of money to small groups of students to innovate for instance “alternative tourism packages”; informal learning approach by visiting towns, villages in order to generate a lot of novel ideas; setting up goals that excite students.

The internships as learning context was emphasized by the participants. All of them agreed on experiences abroad to be a very good learning by doing-approach, most effective when connecting students abroad with projects like ERASMUS+ European projects and give them tasks, e.g. making a portfolio after their internships. Even when not engaged in project-based learning, the international experience leads to important social skills and higher openness of mind.

Furthermore, participants plead for less classic examination modalities like essays and more innovative forms of learner-centered tasks, e.g. creating a Wikipedia page, a podcast, video or interview - tasks,



that they have never done before and where no patterns exist, so they have to use their creative and innovative potential to fulfill them. Students should be given the feeling of self-efficacy and they should get spaces offered for experiences where they can come autonomously or in collaboration to innovative and creative results.

One participant sees a limitation in the promotion of creativity in project-based approaches: Since real life projects of companies are very much connected towards a specific, mostly technical, defined problem, they more foster innovation but not always creativity. A solution to that would be to create a flexible, more broaden environment that is not compromising students creativity. A very crucial aspect, the participants of both focus groups called attention for, was the fact, that it is up to the lecturers to incorporate creativity and innovation methodologies or projects within their courses. In some cases there are often no specialized instructors related to CIM at Higher Education level, while – according to one participant - in enterprises there are. This participant added that it is highly desired to document appropriate methodologies, in order to help and consult other teachers to be innovative and creative in their classes.

The environment in which creativity and innovation teaching takes place, was mentioned the most often. So, for the interview participants, the environment is of high importance when it comes to facilitating creativity and innovation competences. The participants also attach great importance to culture as an organisation-specific component. One participant referred to research, partially to Göran Ekvall, who identified 10 climate dimensions that affect creativity in organizations: Challenge & involvement (make sure, that students are involved and challenged), freedom (to come up with whatever students want), idea support, openness and trust (to feel free to put forward ideas and opinions), dynamism and liveliness (full of positive energy), playfulness and humour, debate, conflicts (negatively correlated with creativity, but normal in human interactions), risk taking, and making sure, that there is time to work on ideas. There was high agreement on these climate factors, especially on the concept of taking risks and getting out of the comfort zone, in order to develop creativity and innovation competences. Participants also emphasize that regarding the reality of teachers at higher education, the environment should offer more flexibility in terms of the structure of courses and how to divide credits and time to activities. To promote creativity is very time consuming and this time is lacking because of strict and narrow requirements of the universities at the moment. This is seen as a detrimental factor of CIM. One participant goes further saying that also the assessing methods in order to determine degrees, are constraining to creativity and innovation.

#### 4.2.6. Validation

To the question, whether any validation system is used within the HEI of the participants, almost all participants report that they do not have a validation approach.

Some institutions apply awards in order to evaluate and value innovative ideas. For instance, one institution takes different numbers as indicators of engagement with creativity and innovation (number of entrepreneurship competitions, number of projects, etc.). Validation gets interest when there is a need for evaluation criteria in order to identify the best ideas or project out of many. One participant told, that innovation and creativity is evaluated on a higher level of university staff. Here, the EntreComp is applied. In Germany the EntreComp framework has been used in and taught as a validation approach, within the Master's programme in AE – however, this is rather exceptional.



### 4.2.7. Recognition/certification

Creative and innovative behaviour and outcomes are rewarded mostly by awards in the end of the year, where the best projects or ideas take a determined amount of money. There were also entrepreneurship competitions mentioned, that are connected with the opportunity for the winning students to do an internship in a company.

## 4.3. Results – Focus Group Business Practice

### 4.3.1. Participants

In the focus groups “Business practice” participated in total 16 experts from Austria, Portugal, Belgium, Germany, Italy, Greece, Lithuania, Bulgaria and Ireland. Most of them were CEOs, Human Resource Experts, Marketing Specialists, Project Managers and Innovation/ Design Thinking trainers and worked in different industries like IT, manufacturing, tourism and education sector.

### 4.3.2. Current biggest learning needs

Participants often mentioned to see a big learning need in keeping up with rapid digital transformation (“providing answers to this digital challenge”). Product developer have to always stay up to date with the latest technical product developments and adapt our own products accordingly. The next challenge resulting from that is to convince – particularly the more experienced - employees to learn how to deal with new technology instruments and to impart digital competences. The requirements of companies often differ from what applicants, especially the recent graduated ones, offer. These young people often lack social competences and more practical skills like doing presentations, solving problems, project management, sale skills, preparing reports, interpreting data and counselling clients. Experienced experts on the other side could improve their abilities in attracting investors and expanding to other countries. Another need seen by tourism sector are people skills, especially teamwork, collaboration in order to consequently get to new, innovative ideas and to the development of further services. One expert saw a need to increase knowledge positivity. An innovative mindset and an environment that facilitates innovation and that people feel free to come up with new ideas, were also described as needs.

### 4.3.3. Perceived importance of CIM

When the moderator asked whether creativity and innovation competences were relevant needs, all participants agreed that these competences play one of the most important roles in the workplace. These competences seemed to be regarded as important when it comes to product innovation and improvement (compared to the higher education professionals that focused more on competence development of the students). Business participants use very different, but in comparison to Higher Education, quite few resources to promote CIM within their organisations. The following resources were mentioned: Creating innovative ideas from the use of social media (Facebook, Instagram); involvement in events; a European Project Department/Lab, in that for instance ERASMUS+ projects are carried out and own business products/offers are improved; giving employees freedom of time (one company 4 hours, two other companies have no time limitation) to work on their own innovation, also with colleagues; providing spaces for creativity and innovation.



#### 4.3.4. Concept of creativity and innovation

On the question whether creativity can be taught or not, the participants were divided in their opinions. Some of them think, that creativity can be taught as much as other competences like trouble shooting, but more in a way of practical learning by doing (“creativity is like a muscle that can be trained”) Others say that you should focus on peoples’ individual strengths and use them as they are, that not everybody has to be creative. It is a matter of recruitment. Putting diverse people together to solve a problem, where not everybody needs to think creatively. It was denied that theoretical trainings could bring the fruits. While it is possible to kill the creativity of people, teaching creativity was considered more difficult or even impossible. The experts agreed more on the fact that every human being has a certain degree of creativity and innovation, which has to be promoted by allowing them the appropriate environment.

Regarding innovation, participants see the differences in the specificity of the two words: While creativity is rather broad and focuses in many ways on solving a problem, innovation was described as “next level” and involves much more tighter thinking to come up with particular solutions. Innovation is also more associated with action implementation and risk taking than creativity is.

#### 4.3.5. Instructional interventions to address CIM

The environment seems for the business experts to be the most important factor with the highest influence on creativity and innovation, whilst teaching them is hardly possible from their point of views. But referring to the instructional interventions brought up by the participants, these are: Mentoring is seen as an effective instructional approach, since it promotes dots, that can be linked and generate creative ideas. Another participant told of leaning weekends in the mountains, where colleagues of different departments discuss face to face on business topics, and no matter what topic is put up there, employees can speak up, make suggestions on topics of other departments, ask questions freely and build up a trustful environment supported by the management. There was a contrary opinion to the fact that the type of problems does not matter. According to the saying “necessity is the mother of invention” another participant is convinced that when something is at stake, people really start to be creative and a chemical change happens in their brains. It has to be a problem, that really matters. Problem based learning in an appropriate environment by the help of some thinking tools is seen as an effective instructional approach for creativity and innovation. One company used End-to-End stories, where employees, suppliers, customers come together into the company and shared their different knowledges, so that creativity was promoted and expertise was increased. Including ideas and knowledge from the outside is very fostering CIM. Learning about the culture of a company has also promoted innovative ideas from the suppliers, since they knew about the concrete conditions of the organization.

Another instructional intervention is using thinking methods like the six thinking hats of Edwards de Bono, in order to give people some structures, patterns or ways of thinking of the world to be creative. Techniques (e.g. TRIZ) are also acknowledged as useful by the other participants, but they do not regard them as “instructional methods”. The importance lies more in the environment or framework in which creativity and innovation take place.

To the question whether creativity and innovation are developed by the same instructional approaches, participants were not sure. The see creativity as leading to innovation and the vice versa was also considered as possible. Innovative thinking and acting can also lead to more creativity.



Others think innovation is applied creativity and there are extra knowledge and competences needed to be able to solve particular problems that are relevant in innovation settings. Innovation requires different people, because it requires a lot more (technical) knowledge about a specific problem, while to be creative people can look at a problem with a much wider lens. All in all, similar learning approaches are seen as useful for both competences, creativity and innovation.

Also, mobility was seen as an effective and important approach to become more creative and innovative. Enhancing the number of dots in brain by experiences, mobility leads to a greater potential thinking “out of the box” and being creative.

More in regard to the environment the participants mentioned it is important to have a culture of “failure is ok”. Other participants say that mistakes or losses of money or clients should also be rewarded. Otherwise the important risk-taking factor will be compromised. Participants are convinced that a rigid environment, where no testing, experimenting and trialling is allowed will result in less probable creative outcomes. Ideas that are not listened, no time dedicated to contributions of persons, no rewards – a negative culture is seen as a detrimental factor. Also, an environment, where there is no focus on results, does not lead to creativity. Pushing together the boundaries of business versus family was considered as supportive, while a strict boundary between work and private life has a detrimental impact on creativity and innovation.

In order to make creativity and innovation happen, the environment needs to be comfortable and open minded. Also, the continuous attention from the leaders, profitable projects, connectivity and people with an entrepreneurship mindset were discussed as conditions.

#### 4.3.6. Validation

All participants report that there is any validation approach in place to assess creativity and innovation (competences). What is used are KPIs about how many products are delivered and how many of them are successful. Creativity is more seen as a means to an end, and once those means are delivered, they move to the end which is the numbers. Even people know that creativity and innovation is essential, it is not regarded as important to evaluate why they arrived at the end, the results themselves are focused on.

#### 4.3.7. Recognition/certification

Internal reputation was named as a form of reward when employees bring a lot of good ideas. Competitions were often mentioned: One company runs a “continuous improvement competition” every year and the best solution is rewarded as “team of the year”. Furthermore, there is a “competition of Europe” or a “Global competition”, where people can share their products or solutions with the top leaders. Another company had an internal competition on the topic “how to make our company equal-friendly and more sustainable”, which was rewarded my materials like iPhones, for example. The general idea of promoting ideas, creativity and innovation within competitions was seen as very motivating by the employees.