

8th International Conference
"Construction Safety and Health"
Nicosia, Cyprus
26th and 27th of May 2023



Research project "Modern Construction Management"

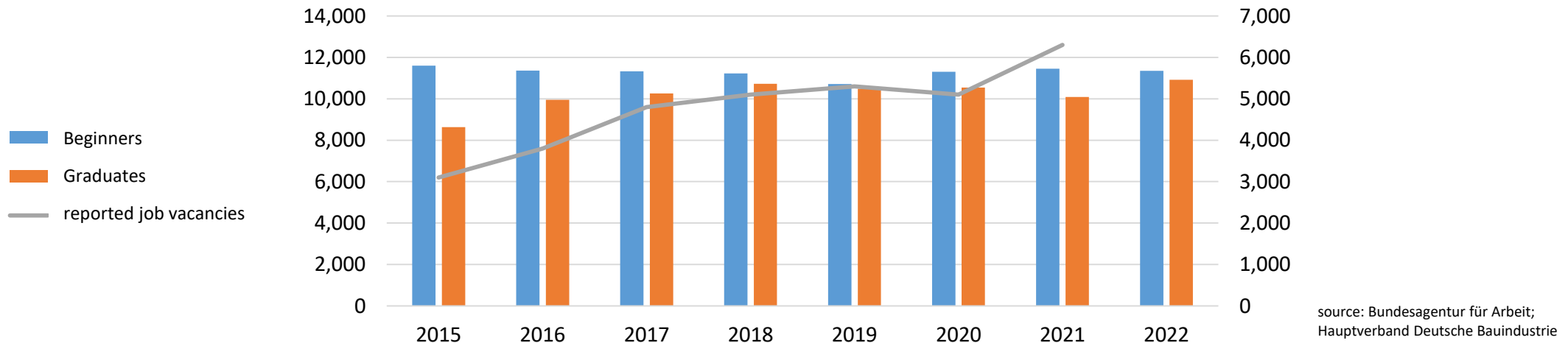
Work models for increasing the attractiveness of construction management.

Increasing gender quota and balancing family and work.

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STATUS QUO

- Enrollment numbers in the field of civil engineering are constant.
- Open positions in the field of civil engineering are increasing.



- Nevertheless, the shortage of skilled workers is developing into the biggest business risk in the construction industry.
HAUPTVERBAND DEUTSCHE BAUINDUSTRIE, APRIL 2022
- Especially in construction management, there is an increasing shortage of skilled workers in the recruitment process.
STATISTIK BUNDESAGENTUR FÜR ARBEIT, AUGUST 2022

Research project "Modern Construction Management"

project information



retrospective: Student survey, expert interviews



work models and validation



dickussion and outlook



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OBJECTIVE

Development of various work modules for construction management in small and medium-sized enterprises

- Improvement of work-life balance for site management in construction projects
- Minimization of skilled labor shortage in construction management
- Creation of a positive impact on the image of the construction industry, especially in the field of building construction, in order to make it more attractive for young professionals.

APPROACH



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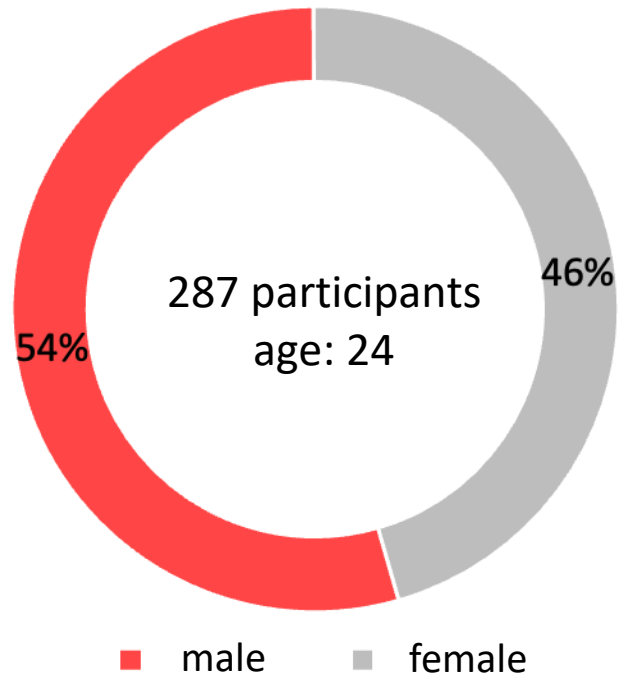


discussion and outlook



STUDENT SURVEY

Gender



Hochschulen

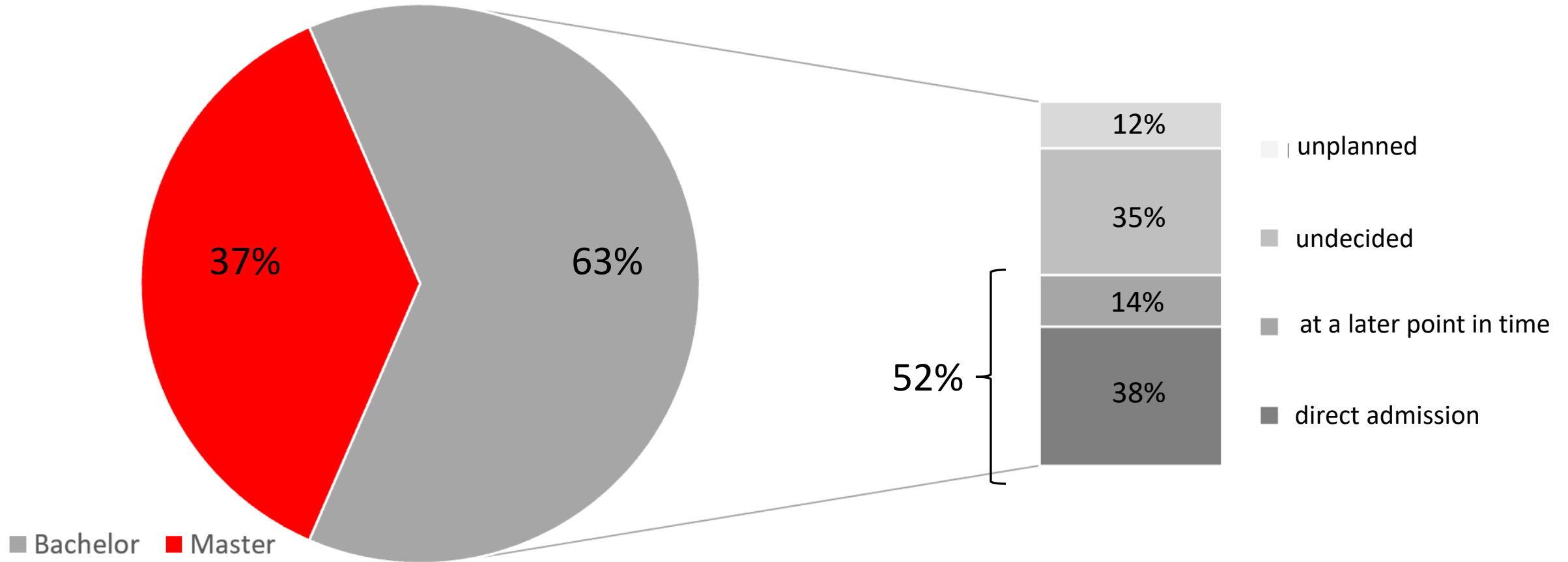


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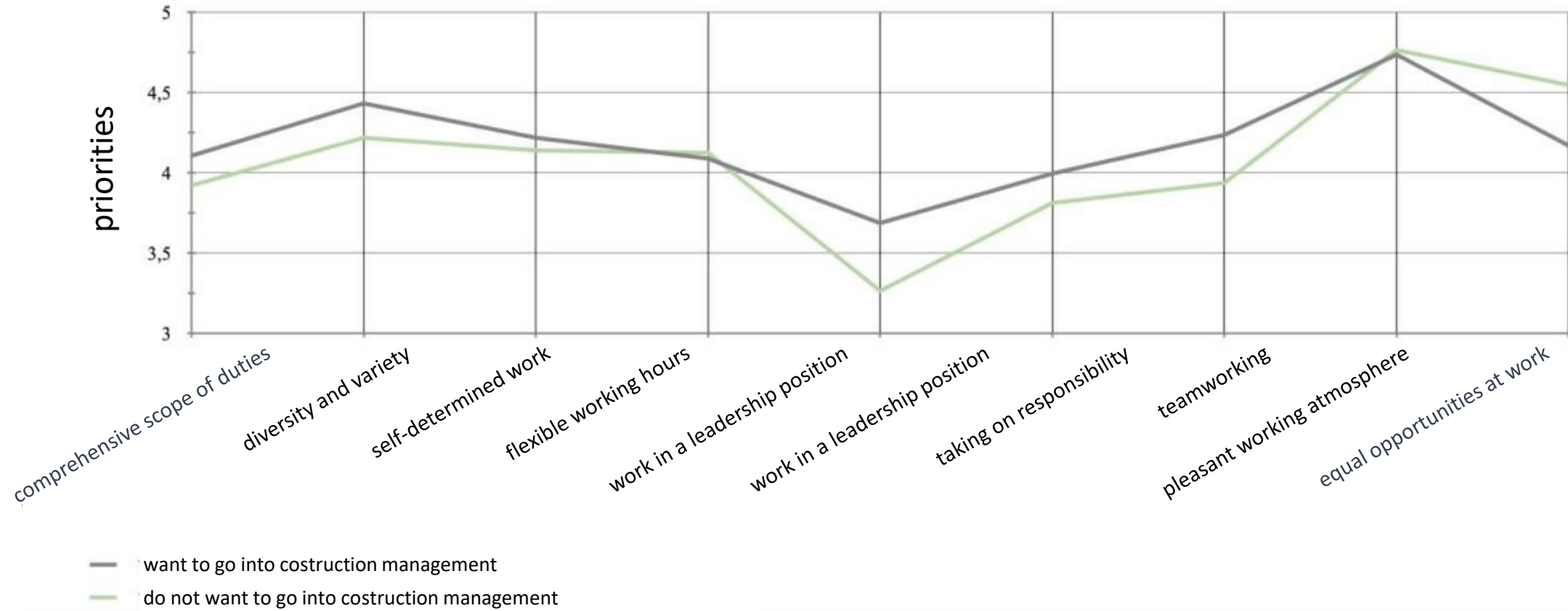
WORK PACKAGE A – Online student survey

intended degree

[n= 287]



WORK PACKAGE A – Online student survey



WORK PACKAGE A – Online student survey

RESULTS OF STUDENT SURVEY: Desires for their future employer

PERSONAL DEVELOPMENT

FLEXIBLE WORKING HOURS

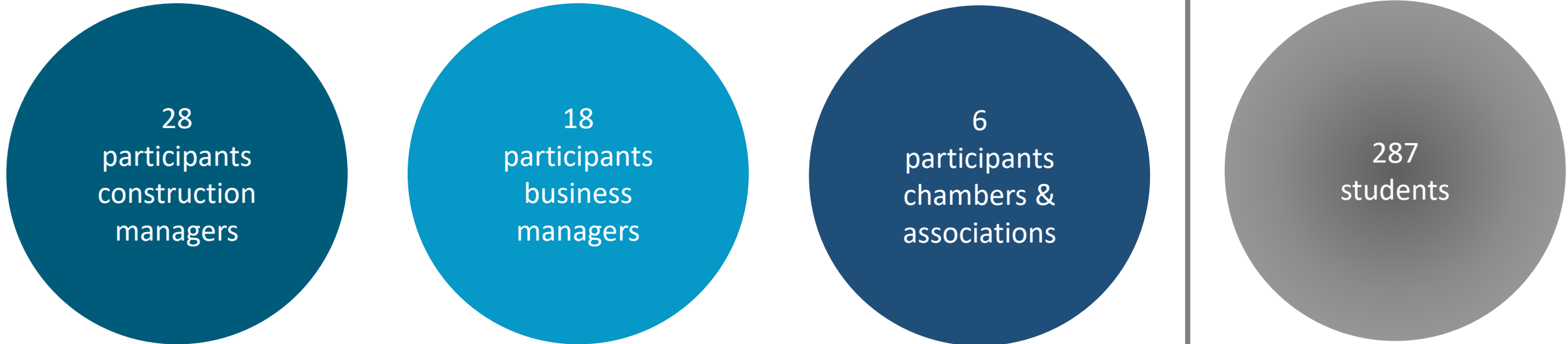
WORK-LIFE BALANCE

DIGITALIZATION



RESULTS OF
EXPERT INTERVIEWS

EXPERT INTERVIEWS



Overall: 52 interviews (BBSR requirement: 20 participants)

WORK PACKAGE B – Expert interviews

RESULTS OF EXPERT INTERVIEWS:

PERSONAL DEVELOPMENT



career opportunities, training possibilities, talent development

TEMPORAL FLEXIBILITY

WORK-LIFE BALANCE



Main problem: Workload, Working more than 40 hours per week at 80% capacity, -> Need for more flexible work models, capacity adjustments, localization

DIGITALIZATION



conservative, resistant to innovation

WORK PACKAGE B – Expert interviews

COMPARISON OF RESULTS:



CURRENT SITUATION FOR THE PROFESSION OF CONSTRUCTION MANAGEMENT

- too many overtime hours
- Field of work is not attractive
- Experts are aware of the constraints and consequences
- Demographic change will aggravate the situation in the near future
- Shift in values among the younger generations

WORK PACKAGE B – Expert interviews

COMPARISON OF RESULTS:

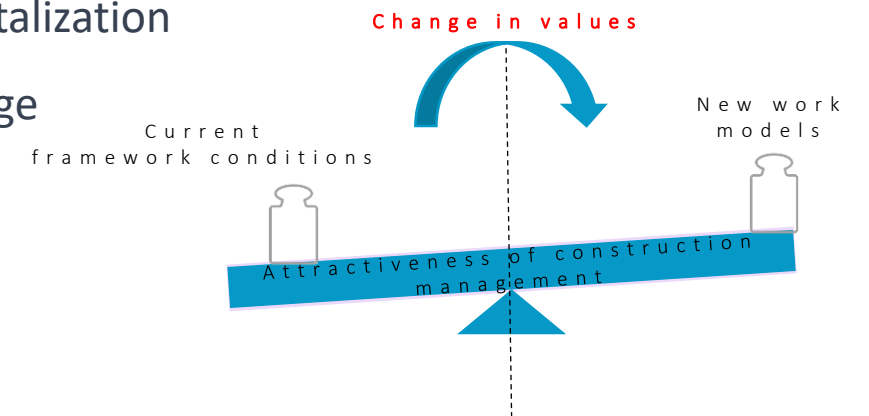
reality

- Low attractiveness of the construction industry
- Poor work-life balance
- Many stressors
- High level of responsibility
- Flexible working hours lead to overwork
- Excessive workload
- Many areas of responsibility



desire

- Personal development
- Salary
- Work-life balance
- Flexibility of time
- Digitalization
- Image



WORK PACKAGE B – Expert interviews

COMPARISON OF RESULTS:

 **Action is necessary for the profession.**

- Increase of attractiveness
- Promotion of young talent
- Sustainable personnel policy
- Compatibility of family, profession, and values
- Enabling individual, flexible agreements.

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work models and validation



discussion and outlook



WORK PACKAGE C – Model development

ACTION OPTIONS

WorkPLACE	Working TIME	Distribution of working time	DOCUMENTATION of working time	Compensation model	Employee satisfaction	Offers for integration and support	Equipment	Exemption
Determination of local flexibility	Determination of the contractual working time	Determination of the company's working time requirements	Determination of working time records	Determination of the remuneration model	Determination of the corporate culture	Incentives	State of Digitization	Family-friendly employer
fixed target	full-time	fixed working hours	documentation of working time	direct monetary incentive systems	strong hierarchies	non-monetary incentive systems	equipment per employee	paid leave of absence
flexible target	part-time	flexible working hours	no documentation for employee	indirect monetary systems	open culture	integration	corporate infrastructure	unpaid leave of absence

Ex.
Office
Construction site
Mobile Office
Home Office

Ex.
Full-time
[40 hrs/35 hrs]
Part-time
[30 hrs./35 hrs.]

Ex.
Flexitime
Trust-based working time
Shift work
Variation of weekly/annual working time, job sharing

Ex.
Time account
Daily psch
Daily start-end
Monthly

Ex.
Salary system,
Tariff, bonuses, allowances, participation
Benefits in kind |
Company pension, time off, further training

Ex.
Area of responsibility, guidelines, feedback, trust, teams, agile, flat hierarchies, employee conversations

Ex.
Further development, promotion |
Generational tandem, elective work time;
Site assistance

Ex.
Hardware, software, workwear, budget

Parental leave, reconciliation concept, educational leave, paid/unpaid leave

WORK PACKAGE C – Model development

MODULE MANUAL – PLACE OF WORK

modules for employees in construction management page | 1

MODULE: PLACE TO WORK

I. GENERAL PART

Application Target	Increasing the local flexibility of construction management employees.
Description	The module describes possible solutions for improving the flexibility of the site manager's work location to fixed or flexible specifications for the work location.
Possible work locations	<ul style="list-style-type: none">▪ Construction site▪ Office▪ Homeoffice▪ Mobile work

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MODULE: PLACE TO WORK

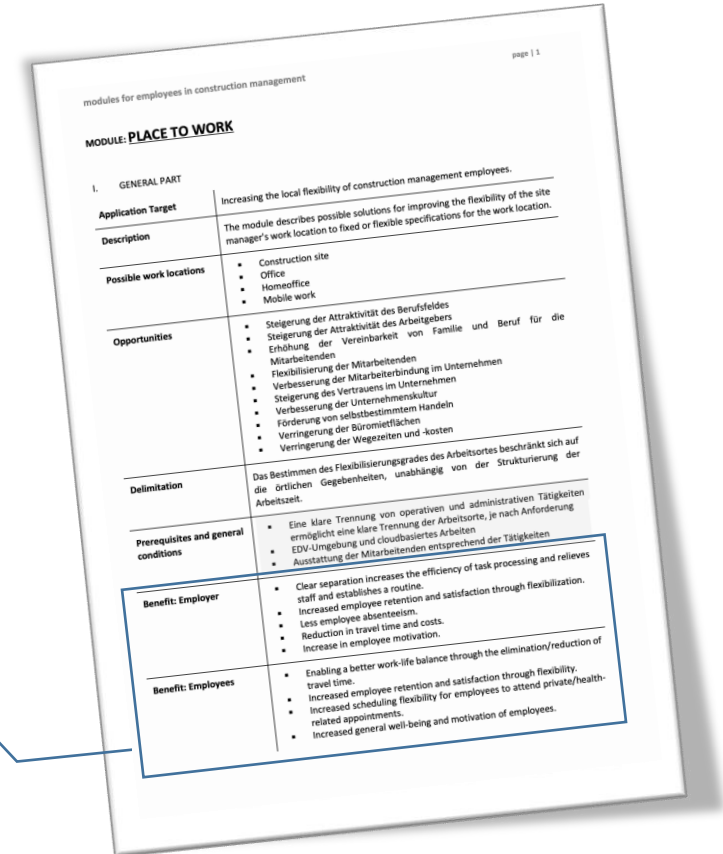
I. GENERAL PART

Application Target	Increasing the local flexibility of construction management employees.
Description	The module describes possible solutions for improving the flexibility of the site manager's work location to fixed or flexible specifications for the work location.
Possible work locations	<ul style="list-style-type: none">▪ Construction site▪ Office▪ Homeoffice▪ Mobile work
Opportunities	<ul style="list-style-type: none">▪ Steigerung der Attraktivität des Berufsfeldes▪ Steigerung der Attraktivität des Arbeitsortes▪ Erhöhung der Vereinbarkeit von Familie und Beruf für die Mitarbeitenden▪ Flexibilisierung der Mitarbeiterbindung im Unternehmen▪ Verbesserung der Mitarbeiterbindung im Unternehmen▪ Steigerung des Vertrauens im Unternehmen▪ Verbesserung der Unternehmenskultur▪ Förderung von selbstbestimmtem Handeln▪ Verringerung der Büromietflächen▪ Verringerung der Wegezeiten und -kosten
Delimitation	Das Bestimmen des Flexibilisierungsgrades des Arbeitsortes beschränkt sich auf die örtlichen Gegebenheiten, unabhängig von der Strukturierung der Arbeitszeit.
Prerequisites and general conditions	<ul style="list-style-type: none">▪ Eine klare Trennung von operativen und administrativen Tätigkeiten ermöglicht eine klare Trennung der Arbeitsorte, je nach Anforderung▪ EDV-Umgebung und cloudbasiertes Arbeiten▪ Ausstattung der Mitarbeitenden entsprechend der Tätigkeiten
Benefit: Employer	<ul style="list-style-type: none">▪ Clear separation increases the efficiency of task processing and relieves staff and establishes a routine.▪ Increased employee retention and satisfaction through flexibilization.▪ Less employee absenteeism.▪ Reduction in travel time and costs.▪ Increase in employee motivation.
Benefit: Employees	<ul style="list-style-type: none">▪ Enabling a better work-life balance through the elimination/reduction of travel time.▪ Increased employee retention and satisfaction through flexibility.▪ Increased scheduling flexibility for employees to attend private/health-related appointments.▪ Increased general well-being and motivation of employees.

WORK PACKAGE C – Model development

MODULE MANUAL – PLACE OF WORK

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WORK PACKAGE C – Model development

II. PROCESSES

Process diagram

Tabular process overview

Location	Description
Homeoffice	Workplace variant of the employee for telework. Telework is a work organization in which employees perform all or part of their work tasks away from the employer's business premises or operating sites. ¹
Office	Betriebsstättenvariante des Arbeitgebers, bei der die administrativen Aufgaben der Bauleitung durch die Mitarbeitenden ausgeübt werden.
Construction site	Betriebsstättenvariante des Arbeitgebers, bei der die administrativen und operativen Aufgaben der Bauleitung durch die Mitarbeitenden ausgeübt werden.

modules for employees in construction management

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III. VARIANT

Possible variants

- Homeoffice: 1-5 AT/week.
- Office at the client's premises: 1-5 AT/week.
- Office at construction site: 1-5 AT/week.
- Mobile office: 1-5 AT/week.
- Home office/office/site: per day/per month
- Home office/office/site: weekly/monthly

IV. ANNEX

ANNEX 1 – Works agreement on mobile working

WORK PACKAGE C – Model development

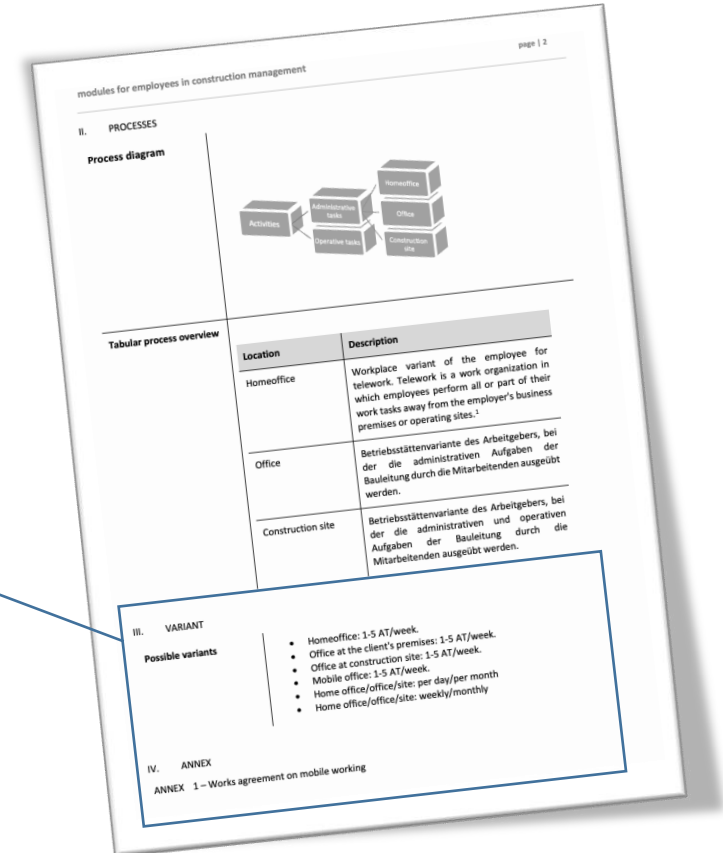
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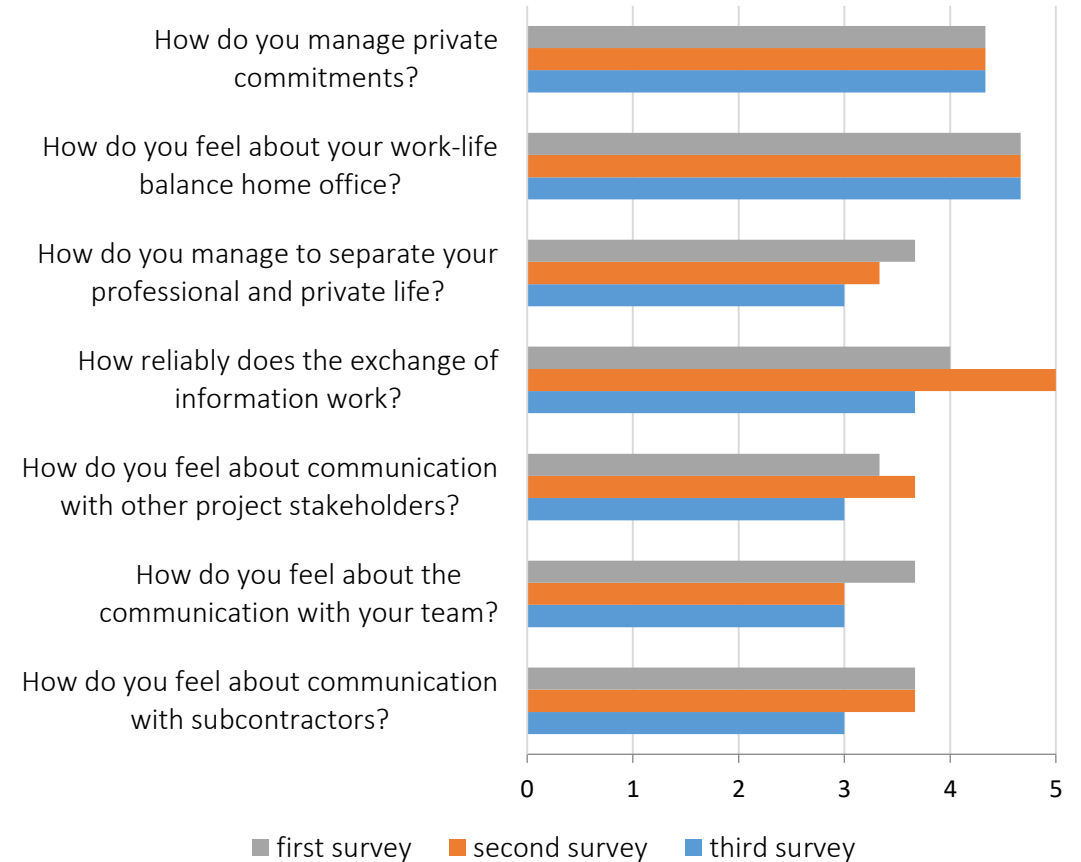
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PLACE OF WORK

Results

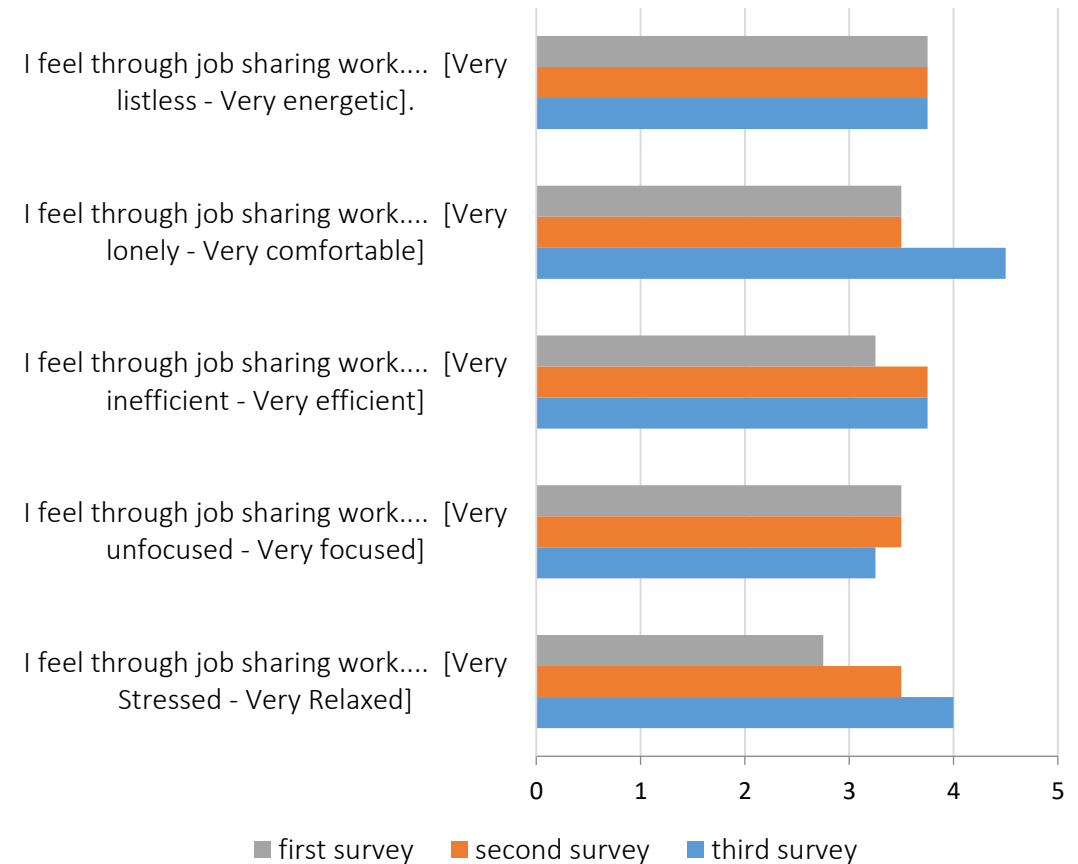
- Communication shifted to digital platforms
- Operational activities continue to be carried out on the construction site
- Administrative activities in the homeoffice
- Personal exchange suffers in part
- Productivity subjectively increased significantly



Distribution of working hours

Results

- Workload has not changed
- Increased efficiency due to shorter working hours
- More leisure activities up to short holidays were possible
- Not feasible in "difficult" project phases
- Adaptation to the construction process necessary



RELEASE PHASE

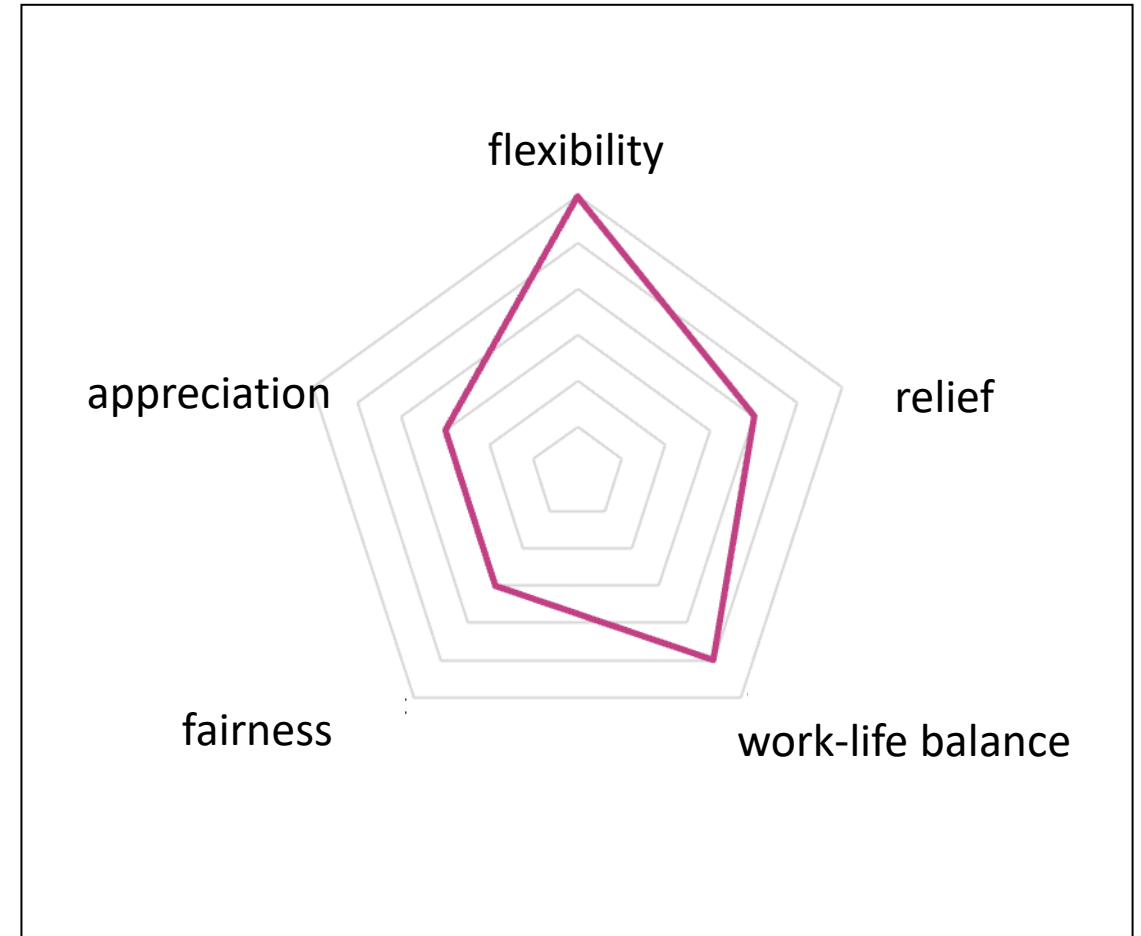
Results

- The best time to start the release phase is at the end of the project.
- Subjectively better compatibility of family and work
- Recovery phase more effective than just statutory leave days
- However, stress rises sharply when work is resumed
- Employees feel more committed to their employer by having the opportunity to take leave

Work time documentation

Results

- Flexibility through account system and free allocation of working time extremely high
- Self-organisation of very high importance
- Empfindings of fairness or appreciation not higher
- Calculation of personnel costs also possible more precisely



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retrospective: Student survey, expert interviews



work models and validation



discussion and outlook



SUMMARY OF RESULTS

Work modules prove to be practicable

- Productivity and efficiency increase in home office if suitable framework conditions are available
- Elimination of commuting time results in an improved work-life balance
- A distribution of working hours leads to a consistent relief of employees
- Targeted breaks in the form of exemptions have a positive effect on the health and motivation of employees
- Documentation of working hours does not restrict employees in their flexibility of working hours.

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Thank you for your attention!