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Journal Article**Author(s):**

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Publication date:

2012-06

Permanent link:

<https://doi.org/10.3929/ethz-b-000040181>

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Originally published in:

Health Promotion International 27(2), <https://doi.org/10.1093/heapro/dar030>

Design principles for data- and change-oriented organisational analysis in workplace health promotion

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SUMMARY

This article focuses on organizational analysis in workplace health promotion (WHP) projects. It shows how this analysis can be designed such that it provides rational data relevant to the further context-specific and goal-oriented planning of WHP and equally supports individual and organizational change processes implied by WHP. Design principles for organizational analysis were developed on the basis of a narrative review of the guiding principles of WHP interventions and organizational change as well as the scientific principles of data collection. Further, the practical experience of WHP consultants who routinely conduct organizational analysis was considered. This resulted in a framework with data-oriented and change-

oriented design principles, addressing the following elements of organizational analysis in WHP: planning the overall procedure, data content, data-collection methods and information processing. Overall, the data-oriented design principles aim to produce valid, reliable and representative data, whereas the change-oriented design principles aim to promote motivation, coherence and a capacity for self-analysis. We expect that the simultaneous consideration of data- and change-oriented design principles for organizational analysis will strongly support the WHP process. We finally illustrate the applicability of the design principles to health promotion within a WHP case study.

Key words: organizational analysis; workplace health promotion; data orientation; change orientation

INTRODUCTION

Organizational analysis is a key element of systematic workplace health promotion (WHP) processes. As WHP encompasses interventions both on the individual and organizational level (European Network for Workplace Health Promotion (ENWHP, 2005), such an organizational analysis has to cover both these levels as well. The ENWHP (ENWHP, 2005) states that 'All measures and programmes have to be oriented to a problem-solving cycle: *needs analysis, setting priorities, planning, implementation, continuous control and evaluation (project management)*'. Thus, an organizational

analysis is initially needed to retrieve information regarding needs and organizational context, as well as for setting priorities and for rational, goal-oriented planning (Figure 1).

At the same time, an analysis is the starting point of a health-oriented process of individual and organizational change. In this context, it has been broadly acknowledged that the *results of analysis* are crucial not only for intervention planning, but also for engaging participants in the change process. The feedback of results is generally seen and used as a key intervention for the participation and motivation of the people concerned (Ducki, 2000; Rogers and Fong, 2000; Mendel *et al.*, 2008).

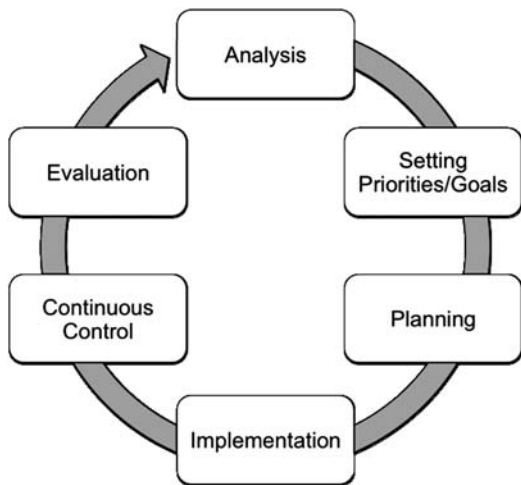


Fig. 1: Problem-solving cycle (adapted from ENWHP, 2005).

More fundamentally, the *process of analysis* can already be considered an intervention, as every question or even observation is an interaction that engages members of the system (Schein, 2002). The Hawthorne studies already stated that the analysis of people causes changes in their behaviour (Mayo, 1933). This effect can be regarded as an undesirable bias and a possible threat to obtaining valid data. On the other hand, the intervention effect of the analytical process could be deliberately utilized to support the process of organizational change. Thus Felfe and Liepmann (Felfe and Liepmann, 2008) see enhanced communication, participation and preparation for organizational change as benefits of organizational analysis, leading to an increase in transparency, reflection and sensitivity for managerial priorities. However, organizational analysis also interrupts organizational routines and raises expectations as well as fears (Harrison and Shirom, 1999).

AIM AND PROCEDURE

Organizational analysis provides individual and organizational-level data for context-specific, goal-oriented planning *and* promotes a process of change. This article proposes a framework of design principles for this analysis in WHP projects that facilitate the simultaneous consideration of both sides of the analysis, i.e.

- (i) a data-oriented approach aiming to produce valid, reliable and representative data;
- (ii) a change-oriented approach aiming to promote motivation, a sense of coherence and a capacity for self-analysis in the participants.

In order to identify key design principles for organizational analysis, a narrative review of the literature was conducted. The review was guided by and incorporated the general principles of (worksite) health-promotion interventions, organizational change and scientific data collection. These principles were studied with respect to both the data- and change-oriented aims of analysis. Moreover, the practical experience of WHP consultants who routinely conduct organizational analysis was additionally considered (see acknowledgements).

Balancing both sides of the analysis is expected to support health-oriented individual and organizational change. We discuss the possible results of such a systematically designed organizational analysis and illustrate their application to health promotion with a case study of a WHP project.

DESIGN PRINCIPLES FOR DATA- AND CHANGE-ORIENTED ORGANIZATIONAL ANALYSIS IN WHP

The proposed design principles for the organizational analysis are guided by the general perspectives of WHP, organizational change and scientific data collection. From the *WHP perspective*, the Luxembourg Declaration on Workplace Health Promotion (ENWHP, 2005) states that WHP should be oriented along the lines of participation, integration, project management and comprehensiveness. The guiding principles of the WHO European Working Group on Health Promotion Evaluation (Rootman *et al.*, 2001) state that health promotion initiatives should, among others, enable individuals and organizations, involve everyone concerned at all stages of the process and use a variety of approaches in combination. From the *organisational change perspective*, success factors are derived from reviews of organizational change processes and case studies (Fortune and White, 2006; Gerkhardt and Frey, 2006; Kotter, 2007). Success factors have included that a project manager should establish

a sense of urgency, form a powerful guiding coalition, gain support from decision-makers, set clear and realistic goals, create and communicate a vision, empower others to act on this vision, plan and create short-term gains, consider the organizational environment as well as boundaries and resources, consolidate improvements and institutionalize new approaches (Fortune and White, 2006; Gerkhardt and Frey, 2006; Kotter, 2007). Finally, the *scientific perspective* on data collection and processing incorporates fundamental research principles.

The framework for designing organizational analysis effectively distinguishes a data-oriented from a change-oriented approach (Table 1). It structures the specific design principles along four key elements of an analysis: *planning the overall procedure, data content, data-collection methods and information processing*. Finally, the table shows the respective aims of the two approaches that are to be balanced during organizational analysis. The following sections describe the design principles grouped in this framework.

Data-oriented design principles for planning the overall procedure

Scientific

Organizational analysis is guided by scientific principles, i.e. the conduction of a methodically controlled assessment, where sources of errors are preferably neutralized. The framework of the study, its design, sample, instruments and statistical analyses are typically considered.

Systematic

A precondition of any data collection is systematic planning (Harrison and Shirom, 1999; Di Pofi, 2002; ENWHP, 2005). Clear concepts and roles, a detailed plan with realistic goals, etc., are some of the many success factors of a systematically planned process of organizational change as well as organizational analysis (Lusthaus and Adrien, 1998; Fortune and White, 2006; Gerkhardt and Frey, 2006; Kotter, 2007).

Feasible (structural, technical, economic)

Structural feasibility concerns aspects such as the size of the organization, its hierarchical structure, literacy levels, languages or localization of organizational units. Technical feasibility affects factors such as the decision whether to conduct an employee survey online or in paper-based form. Economic feasibility may, for example, mean adjusting the extensiveness of the organizational analysis and of the support provided by external consultants to the financial resources of the organization.

Change-oriented design principles for planning the overall procedure

Tailored

Tailoring the analysis to the organization implies customizing constructs and measures, choosing flexible procedures (Inversini, 2008; Kimberly and Cook, 2008; Mendel *et al.*, 2008), considering existing structures for WHP

Table 1: Framework of design principles for organizational analysis in WHP

Element of organizational analysis	Data-oriented design principles	Change-oriented design principles
Planning: choice of the overall procedure	Scientific Systematic Feasible	Tailored Participatory Goal-oriented
Data contents: choice of scope and issues	Theory-based Evidence-based	Relevant Legitimate Critical
Data collection methods: choice of instruments and informants	Multi-method Multi-level	Breadth of participation Depth of participation
Information processing: analysis and interpretation of data	Descriptive and analytical statistics Standardization ↓	Distinction-making Discursive reflection ↓
Aims of the organizational analysis Success criteria	Validity Reliability Representativeness	Motivation for participation Sense of coherence Capacity for self-analysis

(Demmer, 1995; Ducki, 2000; Kimberly and Cook, 2008; Mendel *et al.*, 2008), noting the pre-conceived employee readiness for change (Kimberly and Cook, 2008) as well as the organizational readiness for change (Lusthaus and Adrien, 1998; Schein, 2002; Rütten *et al.*, 2009). It additionally involves taking into account general organizational capacities such as strategic leadership, structure, human resources, finance, programme/services, infrastructure, technology or inter-organizational linkages (Lusthaus and Adrien, 1998). Such a customized approach should be developed in consultation with stakeholders and should be in line with organizational priorities and routines (Paton *et al.*, 2005).

Participatory

Participation is seen as a key success criterion by WHP and change specialists (Demmer, 1995; Rootman *et al.*, 2001; ENWHP, 2005; Fortune and White, 2006; Potvin, 2007). At the very least, employees should be informed about the ‘what, who, when, where and how’, thus preparing and enabling them for analysis. Regular information motivates and activates them for participation (Demmer, 1995). Building participation opportunities strengthens their participation in the change process and thus the effects of change (Antoni, 2004). Participation is also a precondition for rational boundary-setting, as those who are affected should be involved in the decision about who and what is relevant and what falls outside of the boundaries (Ulrich, 2000; Midgley, 2006). Participation-oriented methods also support the increase in competence for change in the organization (Ducki, 2000).

Goal oriented

Clear realistic objectives are seen as a critical success factor in processes of individual and organizational change (Fortune and White, 2006; Kotter, 2007). According to Schein (Schein, 2002), it is important to ask why change should happen (need, possibility, motivation, problems etc.), and what the desired future state is. A goal-oriented design of the organizational analysis is especially important, as analysis raises expectations in the organization’s members (Harrison and Shirom, 1999).

Data-oriented design principles for the contents

Theory-based approach

Theory and models represent the groundwork of each analysis (Harrison and Shirom, 1999; Di Pofi, 2002), mapping important dimensions to be assessed and establishing a framework for guiding hypotheses on the effects and side effects of interventions.

Evidence-based approach

Within the theoretical framework, the focus is placed on essential indicators for which evidence is available (Raphael, 2002). For WHP, indicators are chosen that have been established as determinants of health, are accessible to interventions and sensitive to change.

Change-oriented design principles for the contents

Relevant

A participatory approach in sorting, selecting and developing the contents of analysis is chosen to identify constructs and indicators which the organization views as relevant (Mendel *et al.*, 2008).

Legitimate

The legitimacy of the contents for the particular organization is considered on an equal level to their relevance (Ulrich, 2000; Sasvik *et al.*, 2007). The commitment of the managerial board is particularly important here, because it acts as a model and strategic guide and thus confirms the legitimacy of the analysis contents. As this view may not be shared by the employees, issues of trust and fairness are raised and need to be balanced with the perspectives of the employees to be actively involved in and profit from the organizational change.

Critical

When considering the relevance and legitimacy of the indicators, experts may also add external knowledge that may not be consistent with the views prevailing in the organization. A boundary critique could be applied as a way of critical systems thinking, reflecting the boundary judgements of the system (Ulrich, 2000, Midgley, 2006).

Data-oriented design principles for the methods

Multi-method

In order to provide valid information, a number of methods and data sources as well as informants are considered (Demmer, 1995; Ducki, 2000). Document analysis uses sources such as the company website, company health reports, personnel data, data from the company medical officer or the social services. Observation helps the analysts learn about typical work places, work roles and general working conditions. Interviews are used to gather information on working conditions, demands and resources, tasks and organization of work, processes, context and background stories. Focus groups allow information to emerge and be formed in an interactive process of dialogue and discussion, whereas employee surveys are an efficient way of gathering data on predefined issues. The different analytical methods are systematically combined and triangulated. Qualitative methods offer the possibility for an open, descriptive dialogue while quantitative methods provide an assessment with predefined categories, useful for comparisons (Di Pofi, 2002; Kimberly and Cook, 2008).

Multi-level

The use of different methods or sources does not yet automatically respect the different hierarchical and horizontal levels of the organization. The structure of an organization should be reproduced in the data. An analysis of multiple levels considers interactions between

individuals and their context: this is important, because factors such as policies, values and competencies differ on different levels (Rütten *et al.*, 2000).

Change-oriented design principles for the methods

Breadth of participation

Breadth of participation in analysis comprises the reach (inclusion) of members and the degree of consideration of different perspectives. For example, high breadth can be reached by a full-sample employee survey.

Depth of participation

Depth of participation comprises the degree of individual involvement of the members and their interaction within the method. This is especially given for focus groups.

Figure 2 maps four methods in an exemplary way. The various methods with their different characteristics of participation are systematically used in different phases of analysis and the change process (Ducki, 2000).

Data-oriented design principles for information processing

Descriptive and analytical statistics

The analysis and interpretation of data considers the form of the descriptive data presentation, the appropriate statistical tests,

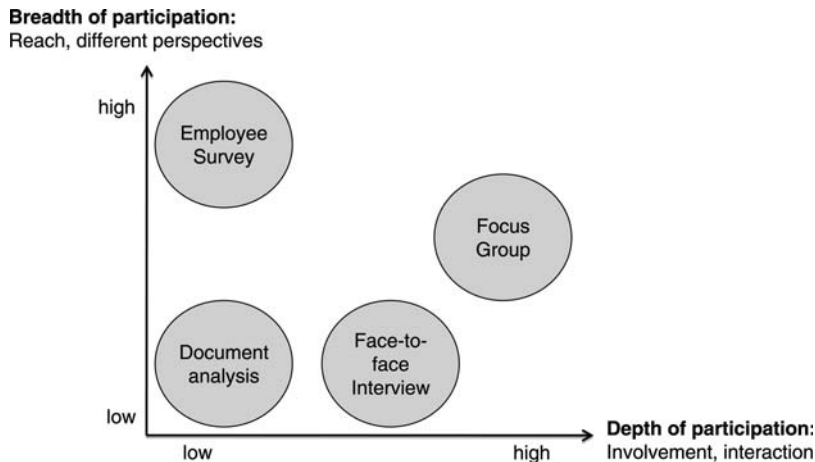


Fig. 2: Breadth and depth of participation and methods for organizational analysis.

algorithms for scale calculation and levels of significance.

Standardization

A relevant result is often identified by comparing it to pre-defined norms or to standardized data from representative, or at least comparable, samples (benchmarks).

Change-oriented design principles for information processing

Distinction making

Processing the information of an organizational analysis permits distinctions to be made. This may be done on different levels and for different purposes: at inter-company level (sectors, industry), company level (departments, teams) or for functions, demographics, hierarchy, time or history (Pettigrew *et al.*, 2001). Possible relevant system boundaries for making distinctions should initially be identified and drawn (Ulrich, 2000; Midgley, 2006).

Discursive reflection

The feedback of results is important to enable discussion of the findings, formulation of hypotheses, as well as to notion trends, dynamics, strengths, weaknesses and to identify further tasks (Rogers and Fong, 2000; Mendel *et al.*, 2008), while simultaneously gathering further information (survey feedback) (Felfe and Liepmann, 2008). The feedback of results is combined with discursive reflection: a discourse can be initiated by distinction-making and comparing perspectives, e.g. between members of different hierarchical levels (Coakley and Scoble, 2003). Depending on the openness of communications in an organization, such a comparison may generate resentment by causing excessive irritation. But conflicts which can be resolved are also constructive (Sasvik *et al.*, 2007).

DISCUSSION

Contribution of the data- and change-oriented organizational analysis

Following the data-oriented design principles for organizational analysis, the goal is to obtain 'good data', as indicated by its validity,

reliability and representativeness. In order to achieve this goal, the data-oriented approach considers the standard scientific principles of systematic planning of the overall procedure, the theory- and evidence-based selection of indicators, multi-methods as well as multi-level, descriptive and analytical statistics and standardization for the interpretation.

On the other hand, consideration of change-oriented design principles is expected to motivate people to participate and minimize their frustration and resistance in the change process. The design principles increase the probability that the analysis, just like the overall WHP process, is experienced as coherent, i.e. meaningful, manageable and comprehensible for the organization and its members (Bauer and Jenny, 2007). Applying these salutogenetic criteria to the change process reflects the fact that the process itself should not create problems, but rather support the final goal of WHP, namely to promote health (see also 'healthy change': Sasvik *et al.*, 2007). Most importantly, it must be considered that change-oriented design principles build capacities for self-analysis and for the design of change processes (Ducki, 2000).

Balancing the data- and change-oriented approaches: bridging research and practice

We expect the combination of data- and change-oriented design principles for organizational analysis to strongly support the WHP process. There is no strict separation between data and change orientation. Both kinds of principles enhance each other, e.g. taking a pluralistic, multi-method approach to the choice of instruments and informants can enhance credibility (Mendel *et al.*, 2008) and thus coherence and motivation. In a comparable way, the design principles build a bridge between conventional and naturalistic research criteria (Lincoln and Guba, 1985). Hoepfl (Hoepfl, 1997) compared conventional and naturalistic terms for judging the quality of research. The naturalistic counterpart of internal validity is credibility (confidence in the 'truth' of the findings), that of external validity is transferability (showing that the findings have applicability in other contexts), that of reliability is dependability (showing that the findings are consistent and could be repeated) and that of objectivity is confirmability (a degree of neutrality or the

extent to which the findings of a study are shaped by the respondents and not by researcher bias, motivation or interest).

Depending on the primary purpose of the analysis, either data-orientation (e.g. for scientific evaluation) or change-orientation (e.g. for routine WHP-consultancy) may predominate. But neither practical nor scientific projects should ignore the other side of the design principles, as every study in the field will trigger change (wanted or unwanted) and any change projects need good data for guiding that change. Such design principles could thus help bridge the gap between research and practice, because both data and change aims are considered (see also: Ducki, 2000).

APPLICABILITY OF THE DESIGN PRINCIPLES TO A CURRENT WHP PROJECT

To illustrate the applicability to health promotion, we shall apply these design principles for organizational analysis retrospectively to a current Swiss WHP project named SWiNG (Stress—Impact and Benefit of Worksite Health Promotion). SWiNG is run by Health Promotion Switzerland and the Swiss Insurance Association. It started in 2008 to implement a range of WHP measures until the end of 2010 in nine large companies with approximately 5500 employees. SWiNG includes an organizational analysis performed longitudinally at three points in time.

Reflecting the *data-oriented design principles of organizational analysis*, SWiNG is considered as a research project with *scientific* evaluation. The analysis is *systematically* planned and conducted by professional WHP consultants with a clear budget and time line, supported by company-internal project leaders mostly with good managerial backup. Regarding *feasibility*, translation problems occurred in companies in which numerous languages are spoken. The number of instruments applied as well as the time-intensity of their application were also experienced as unfeasible in the course of the project. The content of the analysis was pre-defined by work and organizational psychologists, on the *basis* of *theories* of work and stress, covering most of the important organizational issues for which *evidence* on health and well-being outcomes were available. Little content

relating primarily to individual issues (e.g. self-efficacy and problem-oriented coping) or systemic issues (e.g. system boundaries) was considered. SWiNG utilizes a *multiple* range of sound scientific *methods* (including a semi-structured interview, observation, a focus group and an employee survey). These are applied at *multiple levels*, considering all hierarchies, departments or teams. Difficulties were experienced in reaching certain groups of people (e.g. senior medical staff, foreign-language staff with low qualifications). For information processing, the employee survey uses fully automated *analysis* that calculates and displays the scores of scales in relation to *standardized* norm samples. Triangulation with qualitative data from interviews, discussions, observations etc. has to be performed by the consultants and the evaluation team.

All in all, the *results of the data-oriented design in SWiNG* constitute valid and reliable quantitative and qualitative data with little bias regarding representativeness. Data triangulation falls short of standardization and comparability, because no clear instructions are given to the WHP consultants on how to process all the collected data. In future, the methods of data collection will be reduced and shortened to increase feasibility. Certain content relating to individual issues may be added to better reflect the individual effects of the implemented WHP measures.

Reflecting the *change-oriented design principles of organizational analysis*, the overall planning of data collection in SWiNG is *tailored* to the structure of the companies, primarily regarding work-shifts, different locations and, as far as possible, also groups of employees speaking foreign languages. To some extent, the organizational culture was also considered with respect to experience and routines, with analysis as well as formal and informal information policies. All members of the organizations were informed about and *participated* in the analysis to some extent, and its *goals* and milestones were set and communicated. Although the companies did not participate in the selection and development of the analysis contents, they had the option to choose from preset additional scales in the employee survey *relevant* to their branch of business (e.g. shift-work-relevant issues for industry and healthcare). The analysis was conducted with the consent of the management board, thus confirming the *legitimacy*

of the contents. No potentially illegitimate issues were raised, such as individual risk behaviour or specific disorders. Extra items on specific disorders, income, health costs, expenditures for well-being, self-rated productivity, willingness-to-pay for less stress etc., were added exclusively for economic evaluation purposes and were introduced as such. *Critical* contents were primarily selected on the basis of general expert theories on organizational stress (see above), without reflecting on the specific boundaries of the systems. As regards the methods of analysis, in most companies all departments engaged in data collection, primarily through the employee survey, thus permitting the *participation* of all employees. In each company, a small group of people also took part in interactive focus groups, and a dozen key informants were involved in semi-structured interviews. Information processing proved to be a key point in SWiNG as regards change orientation: apart from automatic individual feedback from the employee survey and benchmarks in and between companies allowing *distinction-making*, some companies took part in extensive *discursive team reflection* on the results throughout the organization. A methodological and psychological vocabulary was taken up by the team members (e.g. 'self-efficacy' became a fluently spoken word), and team leaders were committed to process their data themselves (in some cases with the support of the WHP consultants), and subsequently present it to HR and the management board.

Overall, where there was no culture of self-reflection and little experience with psychological information, the response to the *results of the change-oriented design in SWiNG* were initially both resistance and fear. Issues of content were scrutinized and information processing questioned for methodological correctness. Fear and reluctance returned especially where the information processing was experienced as being in the hands of untrustworthy superiors or distant controlling authorities, whereas the individual feedback from the employee survey was largely appreciated and motivating. Nevertheless, certain subgroups in some companies were unwilling to get involved, partly from fear of comparisons and the resulting consequences, whereas in other companies comparisons stimulated energizing competition. In general, the ability to speak out, voice opinions and being heard initially led to

motivation. This also applies to observation methods: whereas feelings of unimportance were reported in those cases where no observations were conducted in a department. In contrast, feelings of satisfaction were noted that finally someone had 'got up from his desk' and came to have a look to see what's going on in the company's real life. The companies could then be retrospectively asked if the contents fitted their organization as regards relevance, if more participation in the choice of scope and issues would have been preferred, and if more critical information should be gathered to uncover issues that were currently unseen. No information is presently available on the experienced legitimacy of the economic evaluation items, but data analysis will be conducted on patterns of incomplete surveys to identify potentially illegitimate issues. Similarly, an overall sense of coherence regarding the process of analysis could be retrospectively assessed. Finally, in some companies, capacities for self-analysis and information processing were built up through intensive participation in the process of analysis and intensive team reflection, giving control and releasing energy and ownership, reducing resistance and the fear of data misuse.

CONCLUSION

The design principles for organizational analysis were derived from a narrative review and the case study illustrated their applicability in practice. Data-oriented design principles help create a good database for WHP, whereas the application of change-oriented design principles makes explicit use of the intervening quality of analysis, motivating people to achieve a coherent process and building a capacity for self-assessment. These design principles could also be applied in other setting-based health promotion projects. Further research will be conducted to test the relevance of the change-oriented design principles applied to support processes of individual and organizational change.

ACKNOWLEDGEMENTS

This work is the result of a close research-practice partnership with our WHP consulting

centre, which is part of the research department. We thank Katharina Lehmann, PhD, Anita Blum-Rüegg, Dipl. Psych. and Anja Barizzi, MSc, for their critical reflection on the contents of this paper.

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