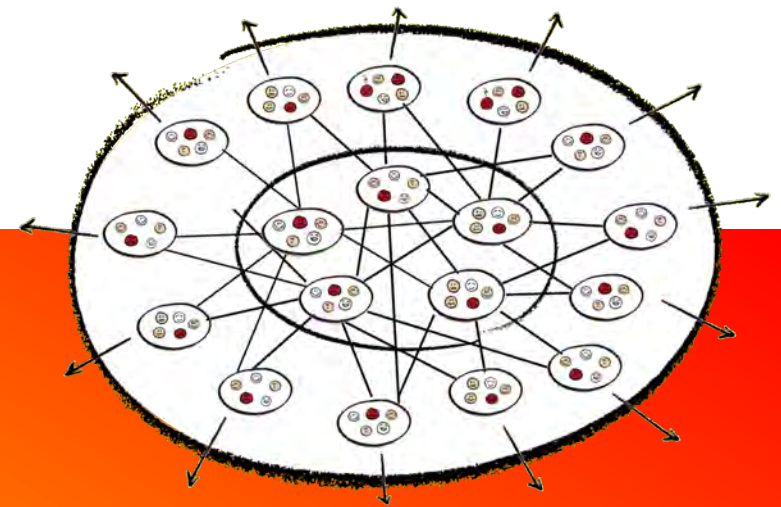# CELL STRUCTURE DESIGN PATTERNS

Real-world insights from the practice of consistently decentralized & democratic organizational design

BetaCodex Network Associates

Niels Pflaeging | Silke Hermann

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This white paper features 'key learnings' and collected insights from more than 20 years of Cell Structure Design practice

Our work with client organizations around the BetaCodex, decentralize-tion, and Cell Structure Design began around 2003, 5 years before the foundation of the <u>BetaCodex Network</u>. At the time, Niels took up his first-ever consulting assignment, with a larger software development firm of 1.300 people that wanted to go "decentralized and consistently self-organized". In short, they wanted to learn how to overcome departments and go "cell structure", for good. Over the course of 20 years, we have advised to at least 50 organizations – large and small and from all kinds of sectors, from industries to banking to service to public sector to not-for-profits, in order to help them get this kind of transformation done, overcoming command-and-control – for good.

Boundary (Sphere of Activity)

Inside

Outside (market)

In short: we gathered a great deal of experience with <u>decentralization</u>. But mere experience is not everything, of course. You must also create insight. From the beginning, we acknowledged that the philosophy of decentralization, or "org design" needed to be explored further, researched and understood, as the accompanying transformation involved overcoming all kinds of mental models and belief systems. This white paper presents some of those insights gathered.

When sharing research like this, there is a risk of over-simplification, and on two sides: As researchers, we might unknowingly be over-simplifying the patterns we have observed. We may learn later that we previously overlooked something. Then, on the reader's side, the patterns we describe might be misinterpreted as *rules* or *ready-made solutions*, although they are meant as *rules of thumb* or *axioms*. We acknowledge these risks. However, it is in the nature of scientific advancement to confront such risks. We believe that the opportunities of making these insights available far outweigh the hazards: They enable practitioners, consultants and academics to make informed judgments on Cell Structure Design. They can advance learning. Ultimately, they can enable progress in organizations**. It's about time**.
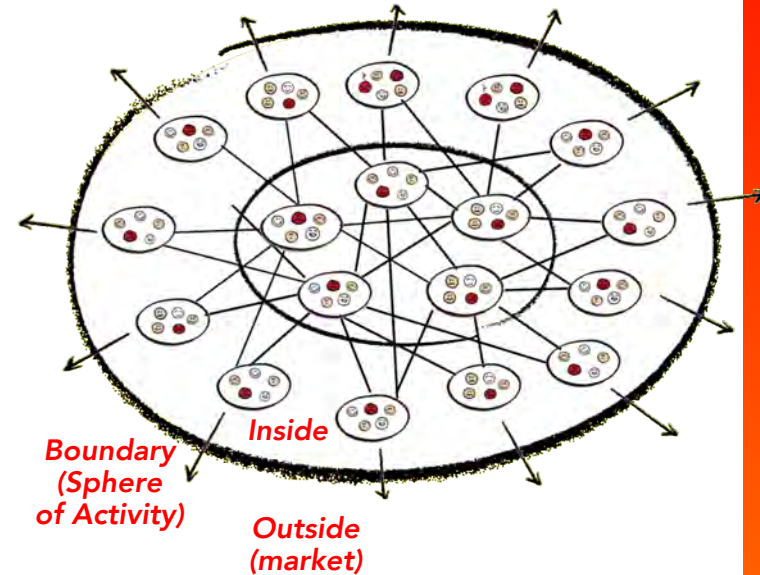
A few words about the roots and foundations of decentralized approaches to organizational design

Different than other organizational design approaches discussed currently, Cell Structure Design is based on the crucial insight that **decentralization is paramount, and in fact inevitable, in complexity.** While Cell Structure Design is rather new (it was published in 2021 by Red42 as an open source social technology), the insight that decentralization of decision-making should be the cornerstone of coherent self-organization, market-orientation and organizational democracy, is not. The idea of decentraliza–tion shines through in the work of early pioneers of organizational theory like Mary P. Follett, as early as in the 1920s/30s (as explored in our white paper No. 18), and it can be found in the work of Kurt Lewin (1930s/40s), W. Edwards Deming (1950s to 1990s) and Peter Drucker (1060s to 2000s), among others. See overview in our white paper No. 14.

Notably, the *Socio-Technical Systems movement* around Merrelyn Emery, Fred Emery and Eric Trist of the Tavistock Institute, added a lot to the deeper understanding of decentralized organizational design. Starting in 1998, the Beyond Budgeting Round Table added further depth to the approach, thanks to its case-study research on firms like Handelsbanken.

In our work at the BetaCodex Network, several white papers are a testament to our own research and advances around the matter of decentralization. First came *Turn your company outside-in!* from 2008, then papers on *Org Physics* and *Organize for Complexity* (from 2011 and 2012, respectively). The year 2021 finally saw the publication of Cell Structure Design as an *open source social technology*, available to all. For additional information, visit cellstructuredesign.com.

**Market**

Periphery

Center

3
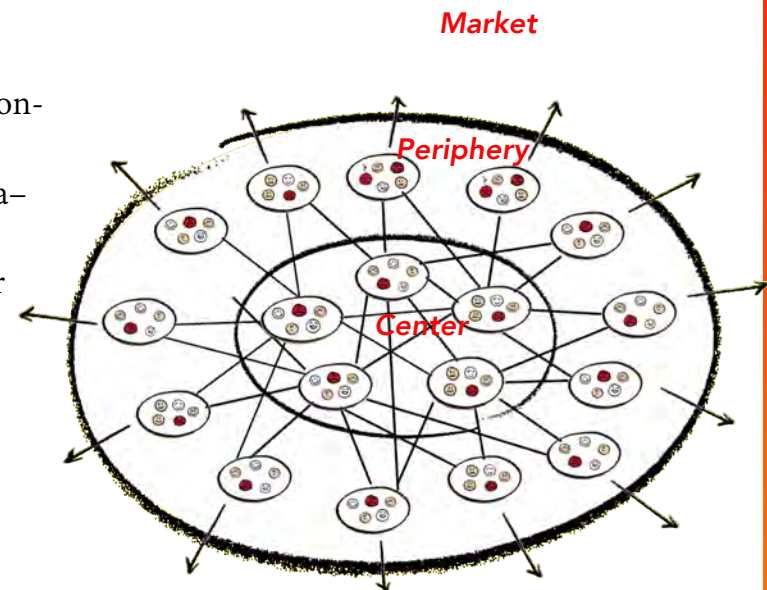
The world has not yet fully grasped the power of organizational decentralization

The problem with around 96% of models, frameworks, or concepts of organizational design, organizational structure and org development is that they fail to appreciate the **difference between periphery and center.** Thus, they are antiquated. Such approaches now belong on the garbage heap of history, and for a simple reason: they simply cannot cope with real-world complexity. The *org design* community has yet to fully comprehend the inescapability of decentralization. So have the *agile* and *lean* communities, which, implicitly or even explicitly, continue to promote top-down steering and centralized command-and-control.

Our approaches are different. **There now is a triad of practical theories around decentralization, which includes <u>BetaCodex</u>, <u>OrgPhysics</u> and <u>Cell Structure Design</u>.** These three concepts, combined, allow to bring about consistent decentralization in organizations of all kinds and sizes. In every organization, value creation flows from Center to Periphery to external market – inevitably. In complex, "red" markets, the Periphery needs to be in charge. This is the nature of organizational value creation in complexity.

Periphery in charge!

Center serves!

But decentralization is more than just another principle for designing today's organizations. It carries a somewhat "political" message: It is rooted in the belief that all people are self-motivated, 'Theory Y' creatures who intrinsically wish to contribute to something greater than themselves. Yes, people need to work to feed themselves and their loved ones, but they also want to self-fulfill at work, if the conditions are right. Decentralization assumes that people are capable citizens, in principle. It is political in that it assumes that people need not be controlled by 'bosses' and the top, nor controlled and oppressed by "performance management" processes. **In short, decentralization implies that far more organizational democracy is possible, and that such democratic distribution of power is natural to organizations.** Decentralization is far more natural than command-and-control pyramids, workplace tyranny, and centralized steering.

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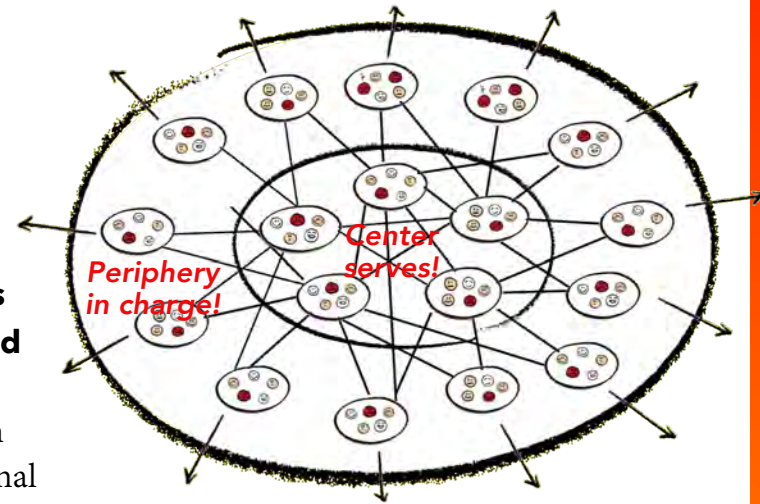
'How many people do we have?' is a great starting-question to estimate the total amount of cells within an organization

Let's assume that your organization has 3.500 people. Divide that by 7 and you have a rough estimate of how many cells your organization's cell structure would approximately have, in total. In this particular case, that number would be (roughly) 500 cells, in total, between periphery and center. Now, to make an organization be in balance, we should assume that at at least 400 of the total of 500 cells, maybe even up to 450, should be business cells of the periphery. These are, of course, just rough estimates, or rules of thumb. This estimate, however, is based on two key insights:

- **Cells, or teams must be small.** A robust team size starts at 5 team members and ends at roughly 8 or 9 team members, usually. In some industries or cases, teams may be bigger. But they usually shouldn't be, as <u>social cohesion within teams</u> erodes fast with increasing team sizes.

- **An organization should have far more business teams serving clients than central teams serving the periphery.** It is only the cells in the periphery that serve external clients directly. This means that all periphery cells are "business cells" facing external clients.

Approaching this kind of estimation the other way around, we might conclude from the Cell Structure Design sketch that the organization depicted on the right is likely to have approximately 105 people (15 cells, multiplied by 7).

A cell structure with a total of 15 cells
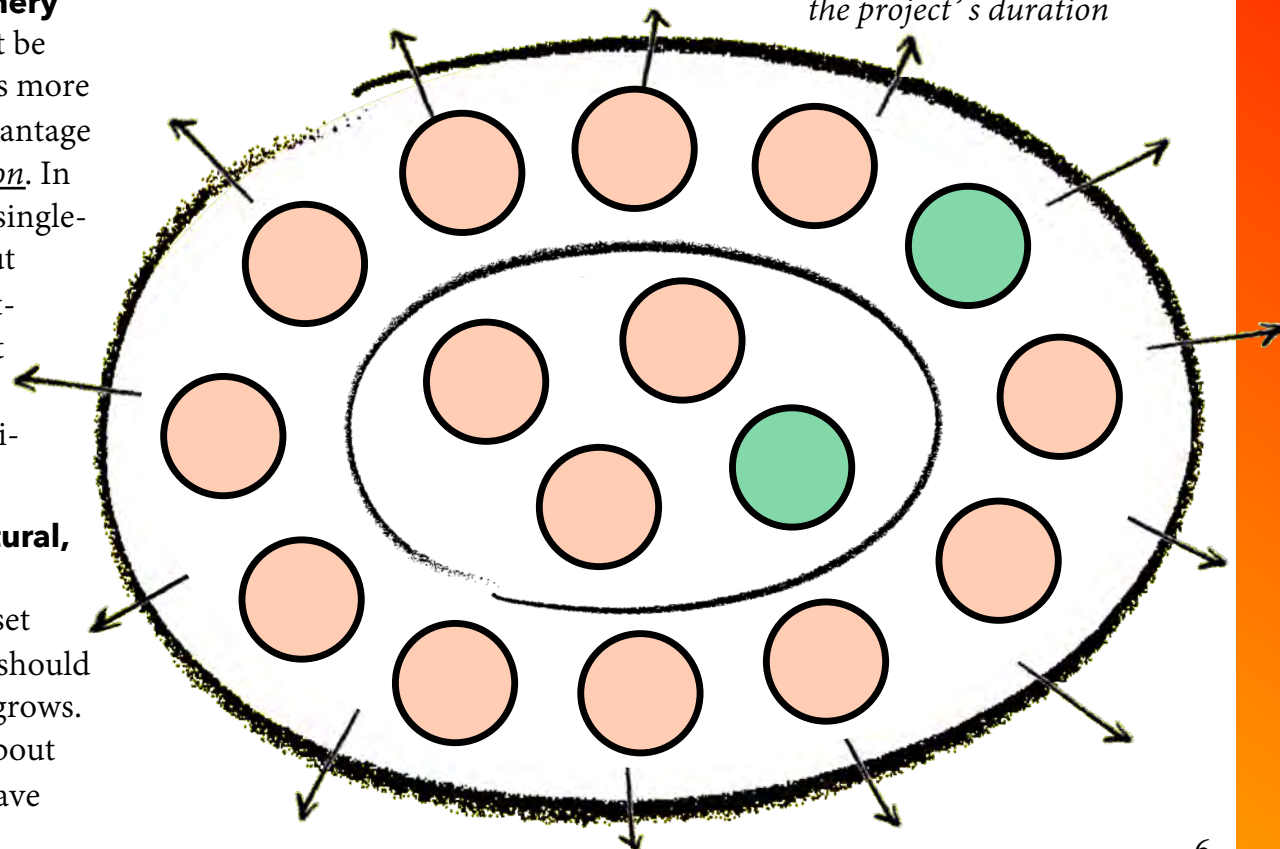
3 center cells

12 periphery cells

5
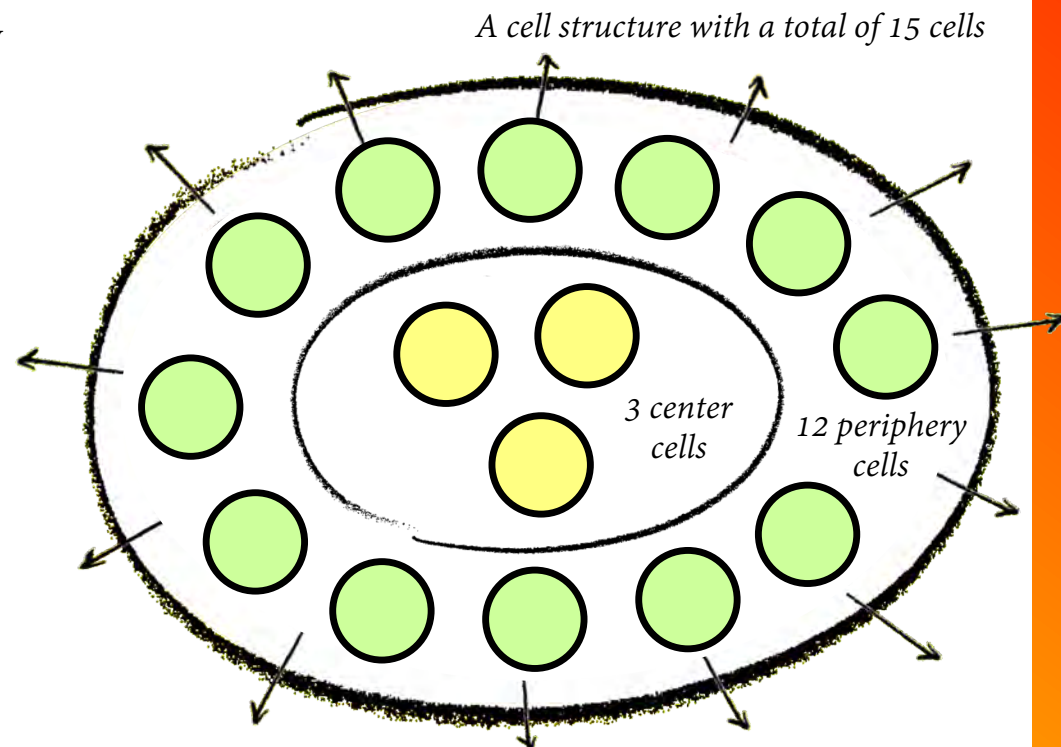
Make cells as long-lived as possible: The advantage of relatively stable teams (or team constellations) is real

In a cell structure, the Individual cell should be as long-lived as possible. An individual cell should not grow much in size, but should be self-renewing and long-lived. Cells may be rather permanent. So, even if the organization does a lot of project work, it should be thought of as happening in multi-project cells with life-spans covering many project life cycles.

More short-lived, **temporary "single-project cells" can exist in the periphery and in the center.** But they should not be dominant, at least in most industries, as more temporary cells have the serious disadvantage of not producing as much *social cohesion*. In some industries, such as construction, single-project cells will naturally dominate, but these cells will usually not be very short-lived, due to relatively extensive project lifespans. In most project businesses, periphery cells should usually be "multi-project business cells" as well.

Fluctuation of team members is natural, but this does not mean that entire cells should be dissolved or new cells being set up from scratch all the time. New cells should mainly emerge when the organization grows. Then, such cells should mainly come about through *mitosis:* division of cells that have grown beyond normal size.

Green: "single-project" cells with life-spans limited to the project's duration

6

Schematic visualization – links between cells or between cells and market are intentionally not depicted

As the 'sales' function gets re-integrated into the periphery, it ceases to exist as a department, a business area, or a silo

In a cell structure, cells in the periphery naturally perform many different functions: Among them, the functions necessary to "sell" to clients, as well as functions necessary to deliver products and services. In decentralization, the reintegration of the sales function into cells of the periphery means that stand-alone sales departments, or sales areas cease to exist, quite naturally. This way, **people in the organization previously described as mere "sales people" get the chance to act as "full-fledged business people",** with a potentially much broader scope of roles, and much broader authority over their work.

Similarly, "engineering" or "product development" functions or departments will usually cease to exist as such. In a cell structure, engineering capability (and staff) might instead be spread over many periphery and center cells, leading usually to the dissolution of engineering departments. In larger organizations, a very small portion of engineering or development might be turned into central "specialist cells", but this will be more the exception than the rule. The more common model is for engineering/development capability to be integrated with other colleagues, within periphery and center cells.

In a Cell Structure Design, all periphery cells are "business cells that sell", with their own clients and revenues, and authority over the use of their own resources
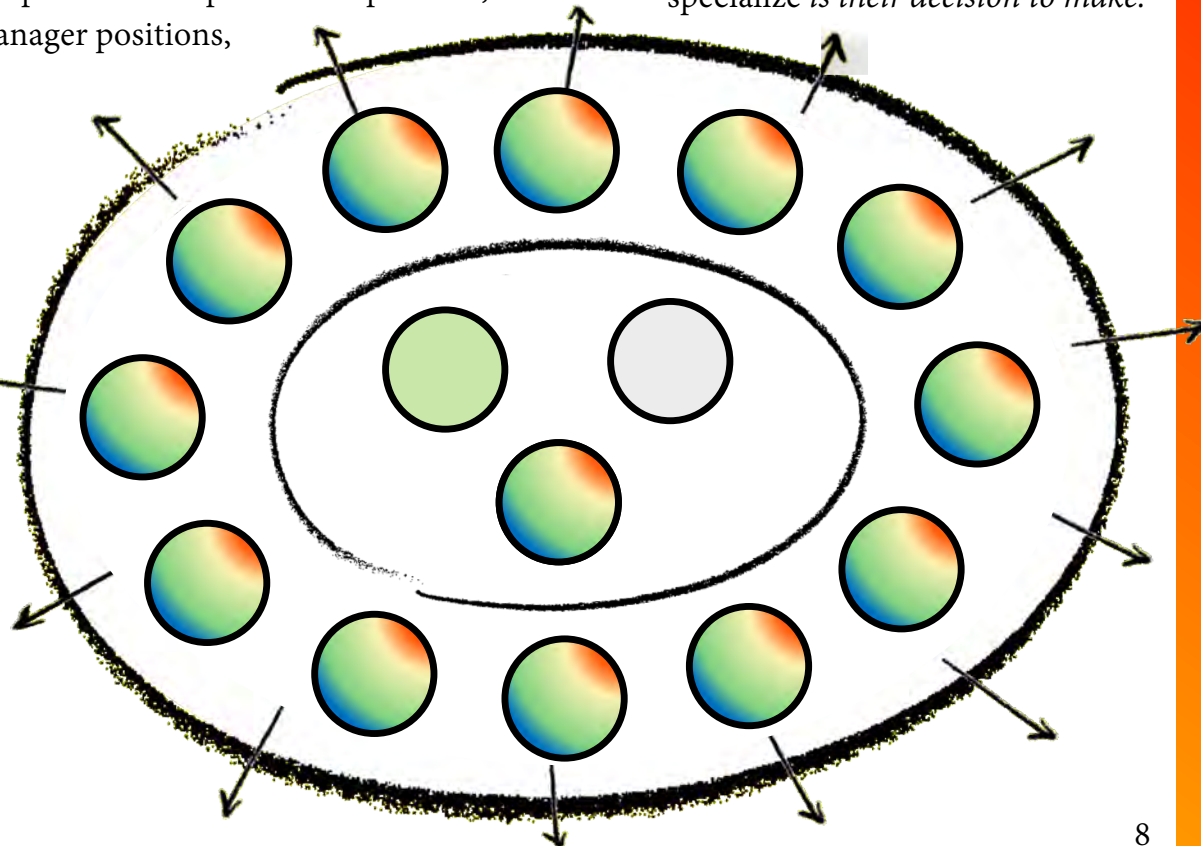
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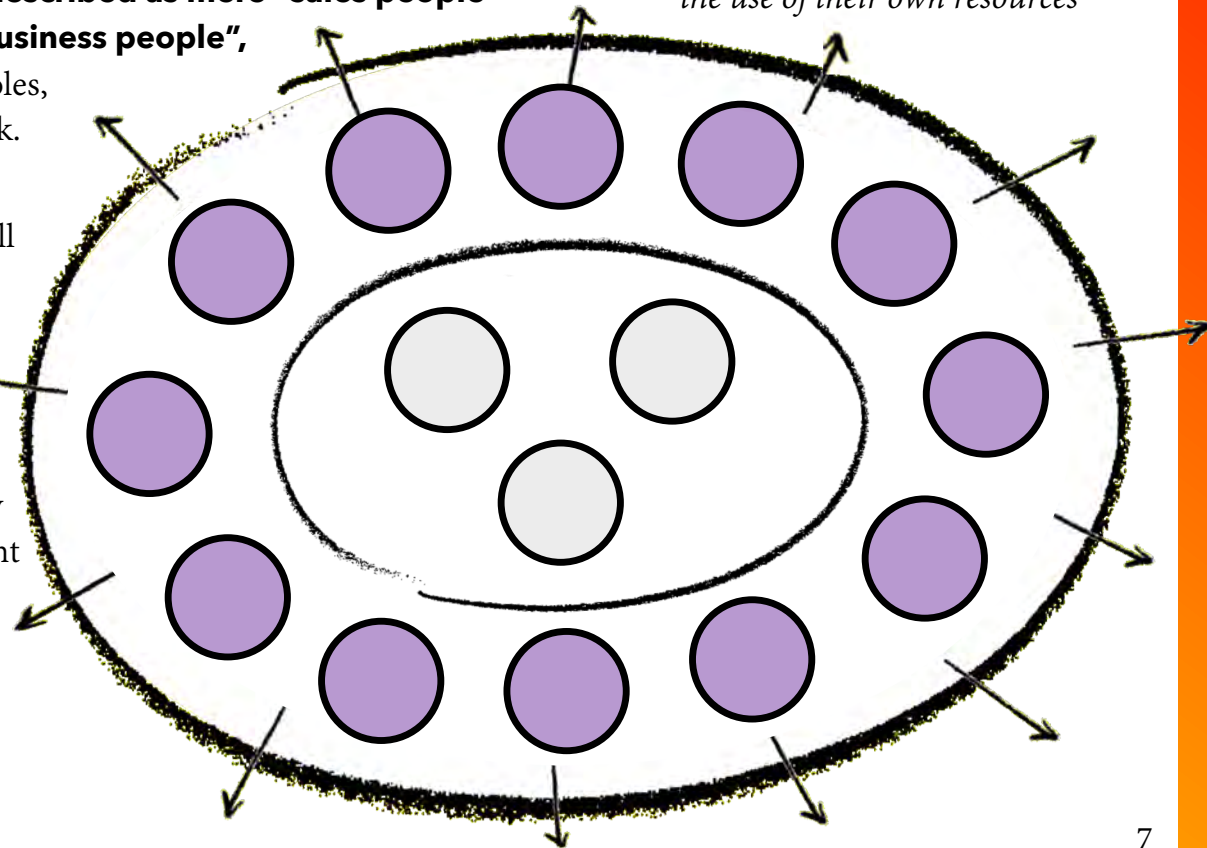
Periphery cells should not be product-focused, but client- or market-focused

In decentralization, periphery cells must be able to choose their own names, to define their own business segment and **to choose for themselves what products and services to work with.** Otherwise the periphery would not be autonomous enough to make its own decisions. This may seem pretty straight-forward. In fact, it implies getting rid of the excessively narrow product-focus that most organizations have submitted themselves to, and that finds its expression in a plethora of patterns, such as business units, powerful product manager positions, centralized pricing decisions, or centralized marketing and campaign management.

The counter-intuitive insight behind this pattern is this: the notion that "people and teams need to be highly specialized to be effective" is profoundly flawed and leads to sub-optimizing. In practice, everyone profits from the broadest possible portfolio offered by business cells: The work gets more interesting, clients are happier and cost goes down. Should cells choose to focus on certain products, this is up to them.

Central cells might in some cases be product- or technology-focused. They must not have power to steer or command the periphery, though.

Periphery cells must be authorized to work with all products available to the network. What products not to work with, or how much to specialize is their decision to make.

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Schematic visualization – links between cells or between cells and market are intentionally not depicted

Periphery cells can collaborate among them, form alliances and coalitions, on an as-needed basis

One of the most frequently asked questions during the transformation from functionally divided, centrally steered org design to a Cell Structure Design goes like this: "If cells have just 6,7 or 8 team members, then how can we tackle larger projects or serve larger client orders, or internal projects that might require 20, 40 or more people? The answer to this is two-fold, we discovered:

Firstly, and most importantly, **cells in a cell structure can collaborate among themselves.** They are free to reach agreements, to run projects in constellations and to share incomes and burdens. The necessary coordination cannot be done by cells of the center, though. Coordination must be between cells that bring their own capacity and re-sources to the undertaking. Cells will collabo-rate on an as-needed basis. This is simple, and it maintains the highest autonomy of all cells.

A second answer to the capacity problem is that **"large" projects or orders do not actually exist.** In fact, the illusion of "big" is often maintained, in centralized organiza-tions, for the sake of politics and prestige. Larger projects or orders consist of sub-orders or smaller projects "with the same address" that can be tackled by teams or team constellations.

A similar concept applies to shared resources, such as large or costly production lines. These will often naturally be used by several cells.
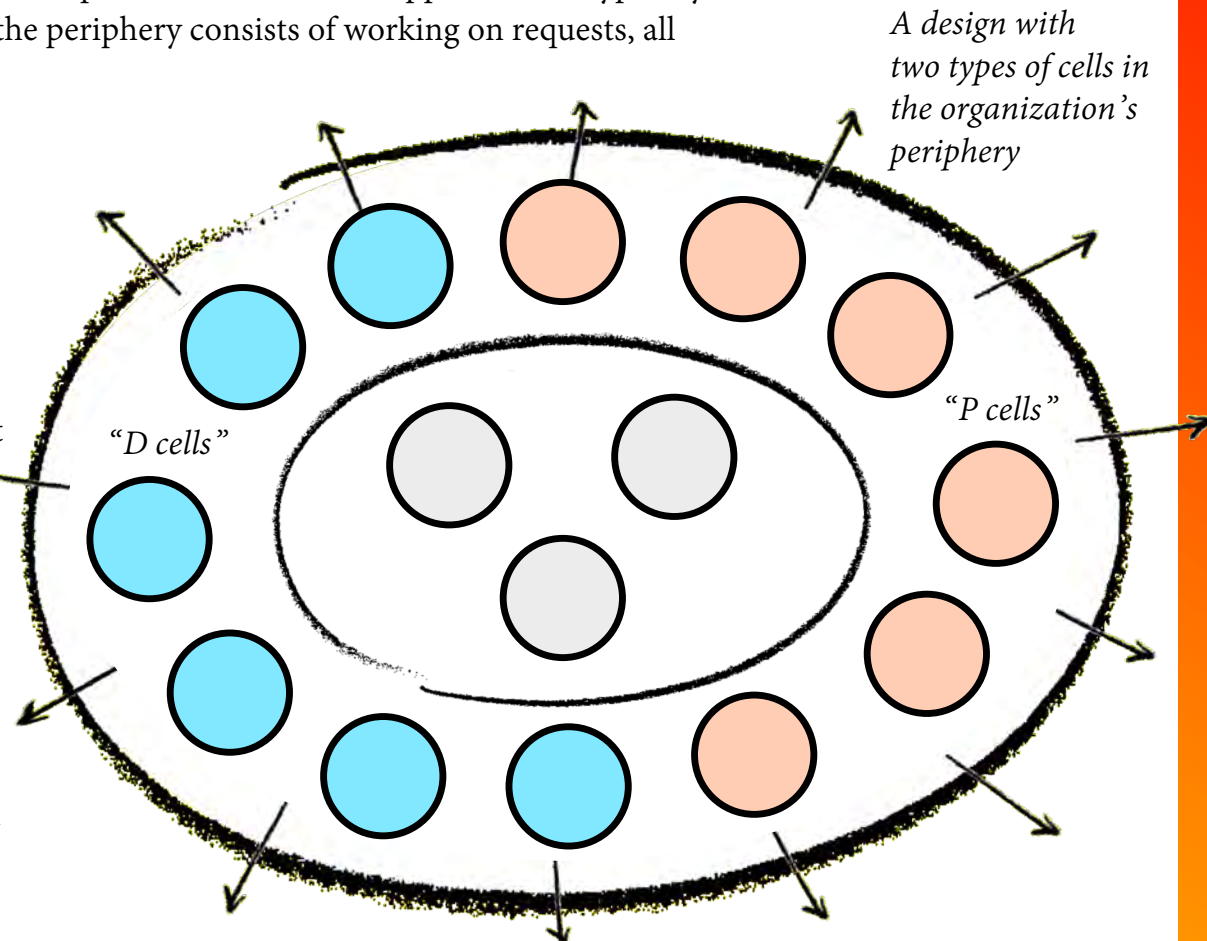
Constellations of collaborating cells in the periphery

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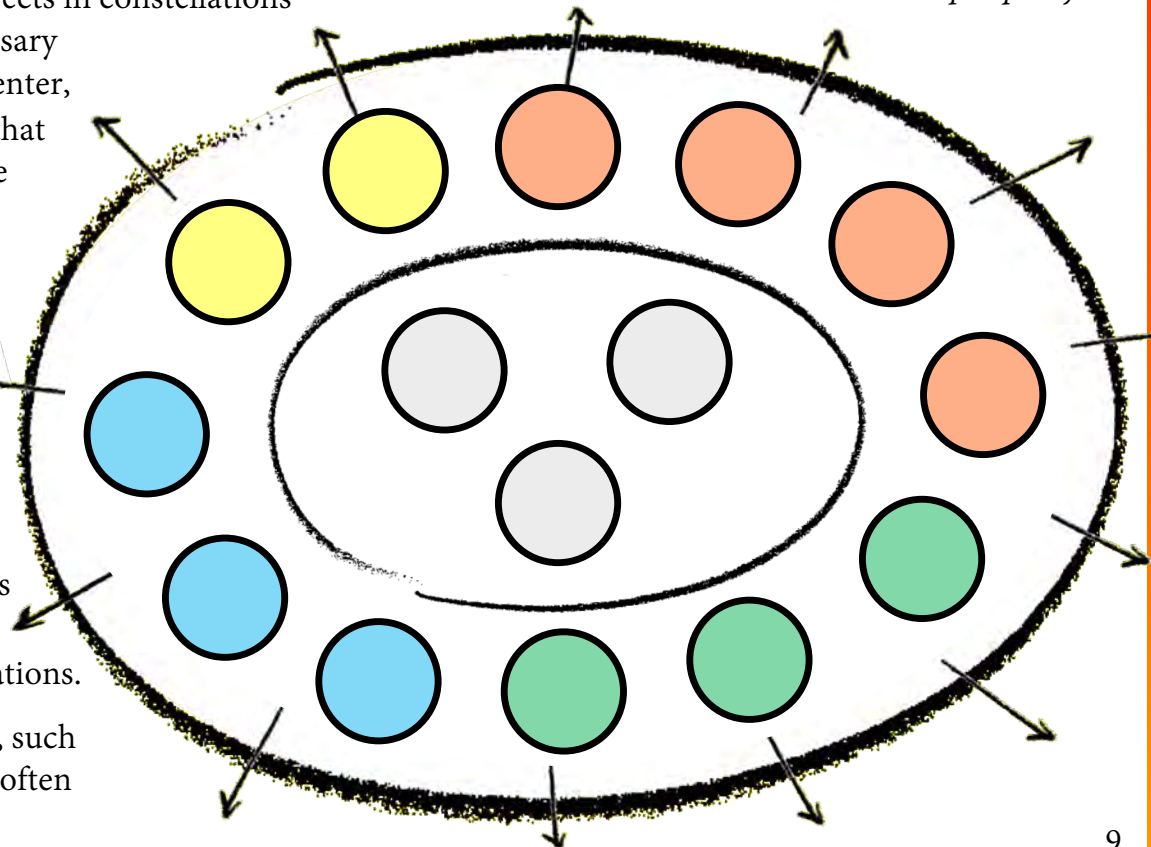
Many organizations will have two or more different 'types' of periphery cells. They are not business units!

In some industries, there will be two (or more) distinct types of periphery cells that are all similar among themselves. Such periphery cell types, however, have nothing to do with "business areas", or "lines of business". Let's take the example of an automotive supplier: Here, typically, a part of the client-facing value creation in the periphery consists of working on requests, all through a proposal and engineering stage, and negotiating the contract. All this may well take a year or two. Let's call this the "project" phase of this business' value-creation. Once the contract with a client is signed, the 2nd phase of the value creation begins, which consists of setting up the conditions for serial product delivery and servicing, then followed by production start and delivering the product, over time. Let's call this the "delivery" phase of the value creation. Accordingly, this kind of company might have a bunch of

- **Project cells, or "P cells",** which may run one or more projects at any given moment of time, and

- **Delivery cells, or "D cells",** which may run one or more serial production contracts at any given moment of time.

A design with two types of cells in the organization's periphery

"D cells"

"P cells"

10

Schematic visualization – links between cells or between cells and market are intentionally not depicted
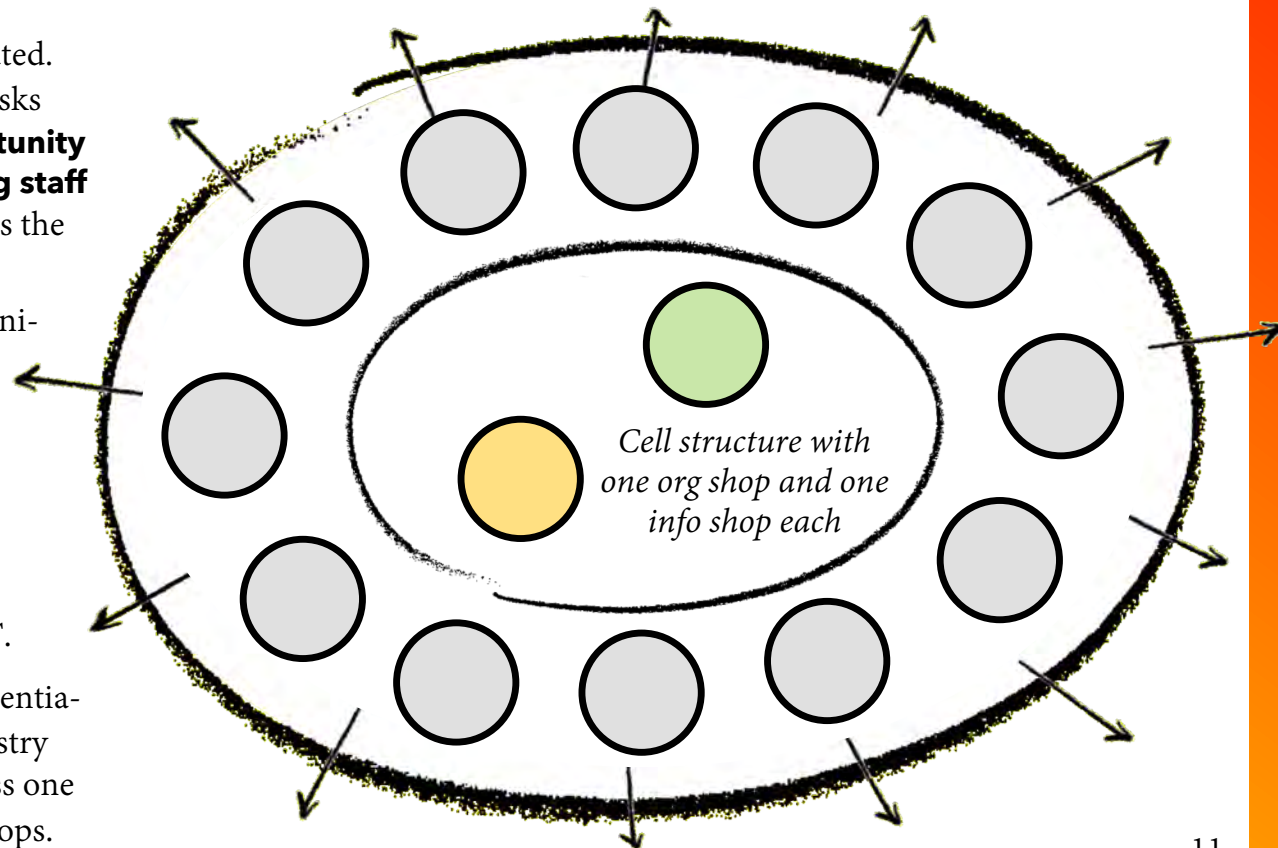
For smaller organizations, the 'org shop/info shop' pattern of structuring the center is both convenient and feasible

So what about the cells of the center? What periphery-facing roles typically remain part of the center, if cells in the periphery are supposed to be highly autonomous and self-contained? What kinds of businesses (so to speak) are left to be run in the center? For practitioners used to departmental, functionally divided structures, with nomenclature such as HR, IT, admin, Marketing and so on, it may be tempting just to turn those departments into center cells. That, however, would be a mistake.

In fact, there is a lot of opportunity in making the center functionally integrated. More diverse portfolios of roles and tasks can be created, and thus **more opportunity for learning growth and fun among staff teams.** One option we found for this is the *Org Shop/Info shop* axiom:

- Org Shops provide a variety of organizational services to the network. Functions like administrative support, general management, HR, legal and marketing.

- Info Shops provide a variety of informational services. Functions like accounting, finance, internal IT.

Other constellations and further differentiations are possible. Depending on industry and size, an organization might possess one or more org shops, and several info shops.

Cell structure with one org shop and one info shop each

*Schematic visualization – links between cells or between cells and market are intentionally not depicted*

When a cell structure 'goes live', Value Creation Accounting for the cells must become operational

One of the many advantages of a Cell Structure Design is that **every single cell in the network gets a fully functional Profit & Loss statement.** Again: in a cell structure, every cell of the network gets a full P&L – which is hard to believe at first, to managers from functionally divided organizations. The 'cell P&L principle' applies to both periphery cells (which *should* make a profit) and center cells (which should *not* make a profit and only break even. For more detail, please consult the <u>Relative Targets concept overview</u>. This approach to performance systems dramatically increases transparency on the cell, or team level, as well as for the organization as a whole. This transparency, in turn, is the basis of high autonomy and decentralized control. We have come to call this approach *Value-Creation Accounting.* This of course requires Fast Close accounting capabilities, or monthly closing within the first days of the following month.

In our work on Cell Structure Design with organizations, the switch to Value Creation Accounting always happens together with the "going live" of the cell structure. Accordingly, from day one of the new, decentralized structure, the financial numbers generated will be shown within the new structure. Even though, for a few months, projects, clients and tasks might still have to be handed over between teams, and even though the ramp-up of internal services pricing (sold to the periphery by the center) may not yet be fully effective. <u>New, 'relative' reporting</u> will also start with the 'go live', making cumbersome planning, target-setting, allocations and budgeting superfluous.

Our extensive practical experience has shown that all ERP, transaction and accounting systems have proved capable of handling Cell Structure Design very easily.

Center cells must achieve break-even

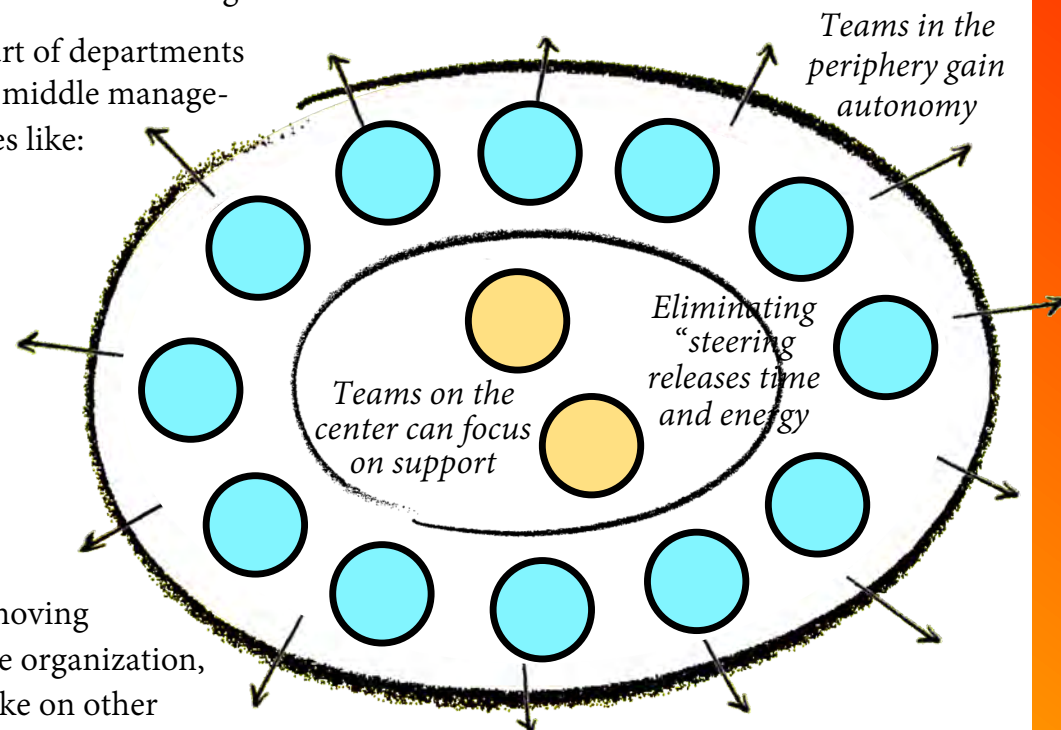*Periphery cells must earn a margin*

12
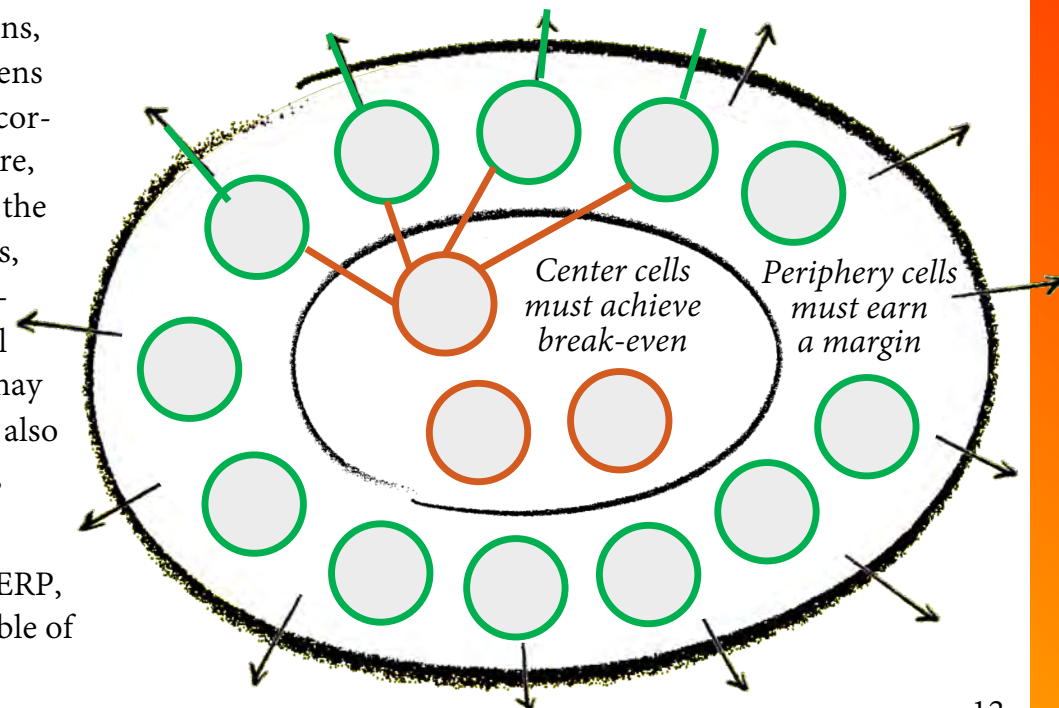
'Steering-heavy' roles and positions have no place in a decentralized Cell Structure Design

In centralized Alpha organizations, many positions, roles and functions exist primarily for the sake of internal steering. In command-and-control organizations, the existence of such roles and positions is considered "normal". Our client work shows that the amount of time and resources invested into, or wasted for steering is usually grossly under-estimated, at the onset of the transformation. **All steering of the periphery by the center, however, runs counter to decentralization,** and must be removed entirely during the adoption of a Cell Structure Design.

Positions and roles of centralized steering are often part of departments such as finance, HR, marketing functions or so-called middle management. They also include (but are not restricted to) roles like:

- Schedulers/planners/dispatchers
- Supervisors, shift leaders
- "Heads of", COO
- "Team leads"
- Key account managers
- Product managers
- Agile Coaches
- Committee memberships
- Recruiters

Removing such roles and positions does *not* mean removing the people who are currently fill in these roles from the organization, of course. These staff members should be invited to take on other roles, in the organization's periphery, or in the center.

Teams in the periphery gain autonomy

Eliminating "steering" releases time and energy
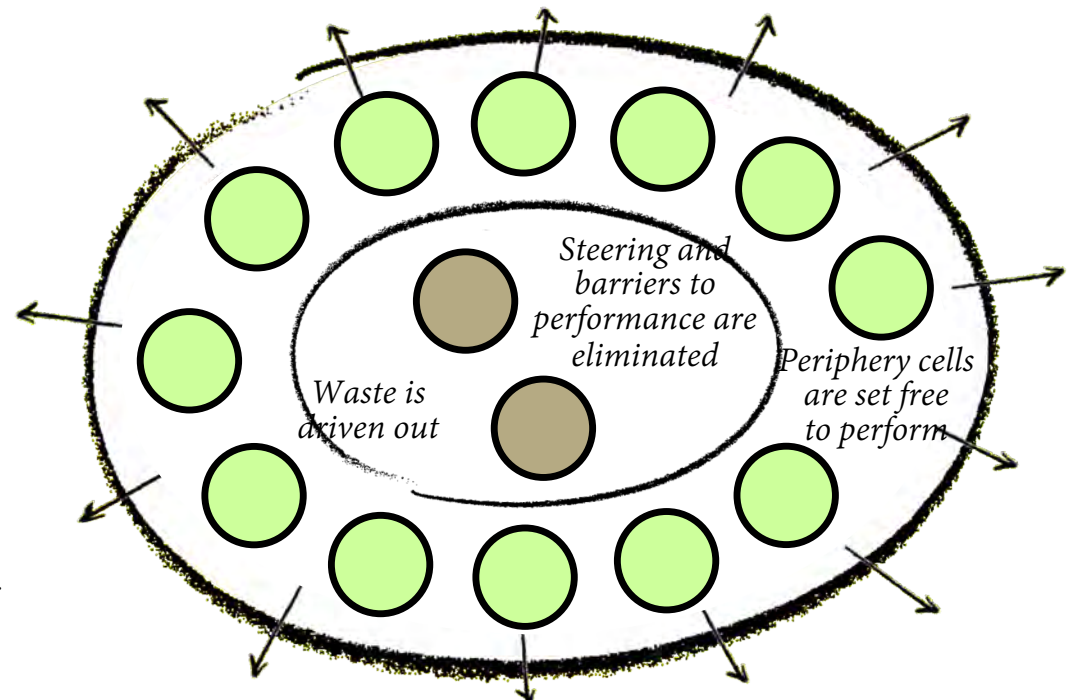
Teams on the center can focus on support

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Cell Structure Design: impossible to achieve without tackling Organizational Hygiene right from the start

When organizations are bringing about decentralization and functional integration, the positive effects on performance will not take long to emerge. In fact, they will be immediate. There is good reason for this. Upon the "go live" of a cell structure, fragmentation and barriers to performance are removed, wasteful steering fades away, intrinsic motivation and social density in teams kicks in, waste is driven out by individual teams and through team interactions. And that is just the beginning.

Decentralization and functional integration into cells also comes at a price. Many organizational patterns, tools and practices must be ended in order to achieve decentralization. It is for this reason, that **Organizational Hygiene is a precondition to Cell Structure Design**. Hindering patterns, tools and practices (including steering processes , roles, meetings and committees) need to be removed.

Put differently, Cell Structure Design cannot be implemented on top of previous command-and-control practices. More than anything else, a cell structure must substitute previous practices and structures. As we have learned, such cleaning-up of an organization goes along with substantial simplification and massive elimination of waste of time and money. Just like that. Right from the start.

Steering and barriers to performance are eliminated

Waste is driven out

Periphery cells are set free to perform

A summary of the Cell Structure Design patterns outlined in this research paper

1. The question **'How many people do we have?'** allows estimation of the amount of cells in the organization's periphery and center.

2. **Cells should kept intact as long as possible,** even though team constellations within cells will change over time.

3. As the sales function gets re-integrated into all periphery cells, '**sales' ceases to exist as a stand-alone department.**

4. **Client- and market-focus of periphery cells** supplants excessive specialization on products.

5. **Collaboration, alliances and coalitions among periphery cells are natural** and must be authorized at all times.

6. **An organization's periphery will often consist of two or more different cell 'categories',** which are not to be confused with business units.

7. The concepts of **'org shops' and 'info shops'** can be helpful to make teams in the center more effective, attractive and diverse.

8. The 'go live' of a cell structure is always accompanied by a go live of **Value Creation Accounting and 'relative reporting'.**

9. **'Steering-heavy' roles and positions must be completely removed** upon going live.

10. **Organizational Hygiene needs to begin very early-on** in the transformation initiative, long before going live.
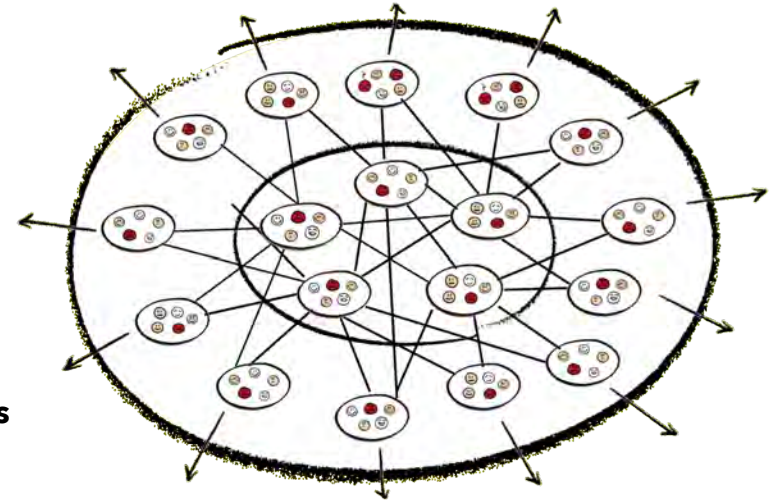
More Cell Structure Design patterns may be added to future editions of this research paper. You are invited to share your own insights on patterns with the authors (see contact information on the authors page)!
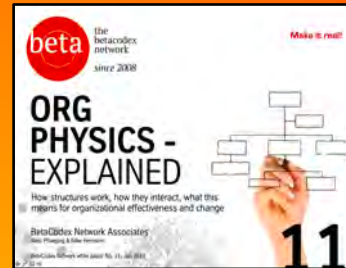
For more information about Cell Structure Design, visit cellstructuredesign.com

Sources and recommended reading

Related BetaCodex Network white papers *(available on betacodex.org/white-papers)*

Turn your company outside-in
Special Edition, 2008

Org Physics – Explained
White paper No. 11, 2011

Organize for Complexity
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Further selected reading

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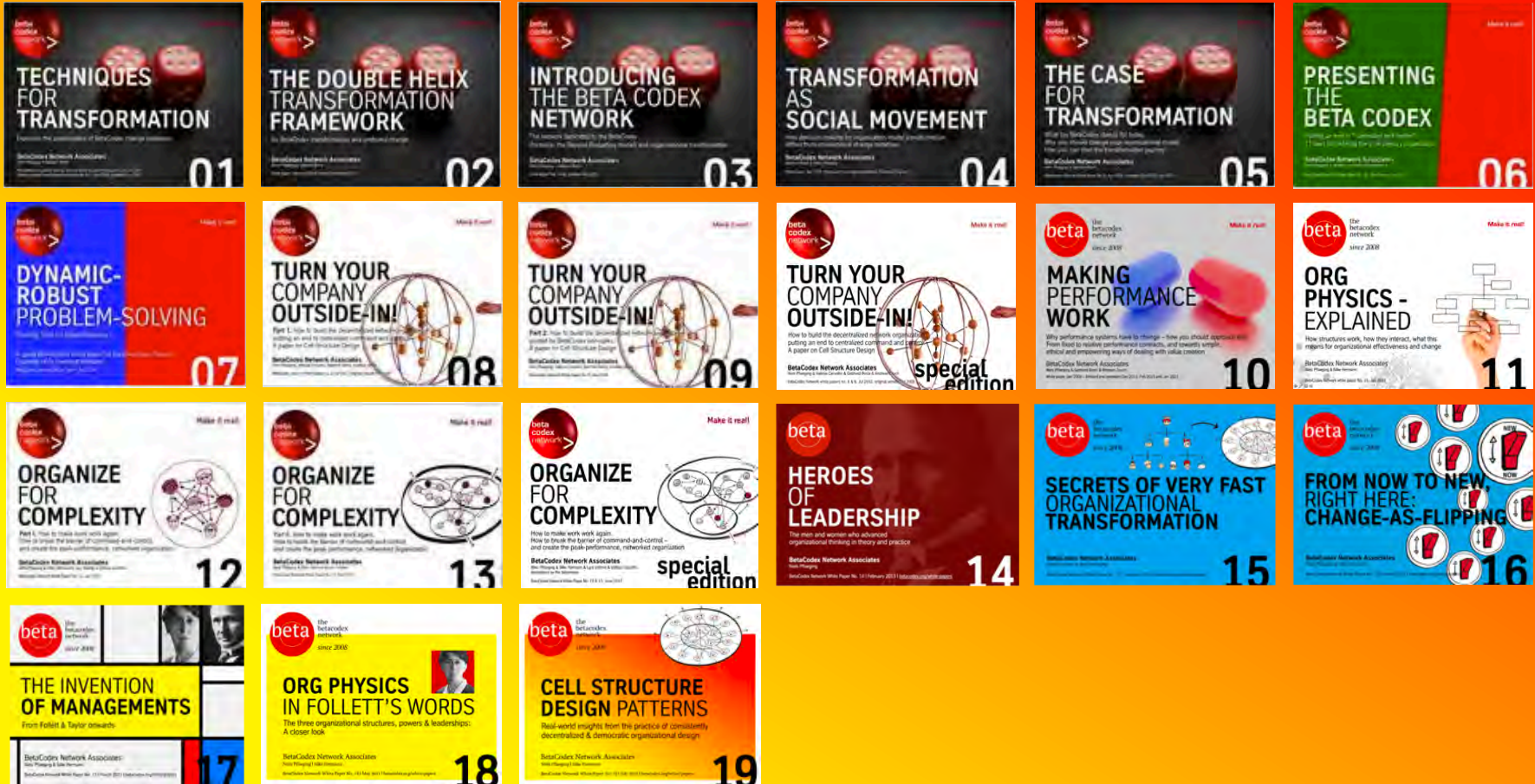
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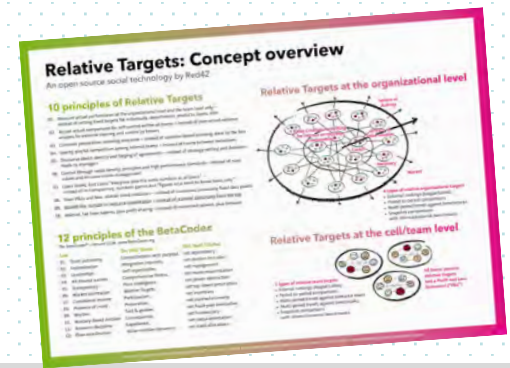
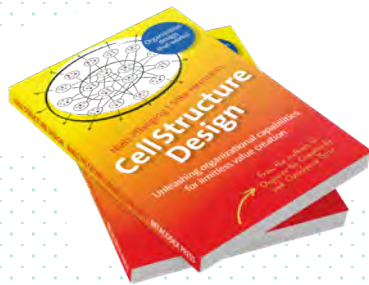# Cell Structure Design-related posters & books from Red42
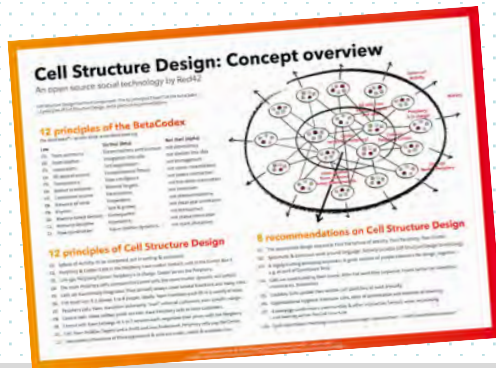
Cell Structure Design concept overview poster
A1 format, folded
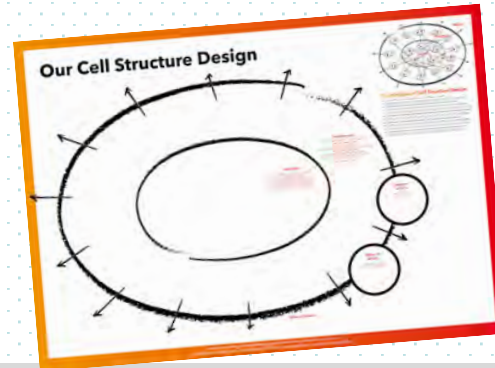
Our Cell Structure Design work poster
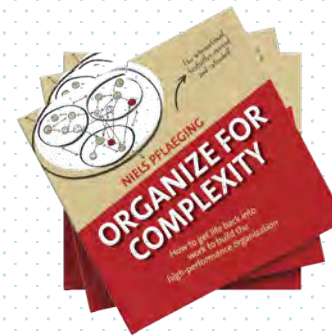A1 format, folded, w/sticker sheets

Relative Targets concept overview poster
A1 format, folded

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Unleashing organizational capabilities for limitless value creation Niels Pflaeging | Silke Hermann. Forthcoming

OpenSpace Beta
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What's now and new in organizational leadership, transformation and learning. Niels Pflaeging. 2020

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