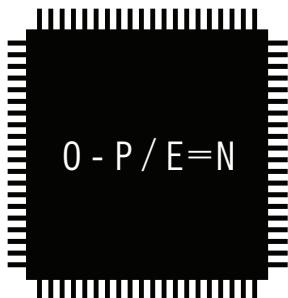


Machine & Language for Service Design

Majid Iqbal
design#code LLC



DESIGN  CODE

What is design#code?

design#code is a system for design & innovation in services that combines the tradition of industrial design with the tradecraft of strategy, to develop breakthrough solutions: services that deliver superior sets of outcomes & experiences at better price points, minus the false choices or compromises that corrode customer value and erode margins.

Good design, fastTM

design#code makes it possible to engage teams and individuals across an enterprise in the development of breakthrough solutions, by tapping their collective knowledge and insight on how best to deliver a particular set of outcomes and experiences that will fulfill a customer need.

At the heart of the system are a pair of canvases embedded with a special code that implements the business logic for services. When the canvases are filled with ideas, observations and insight, the embedded logic passively converts the accumulated content into design.

EXHIBIT 1A

Think inside the boxTM

design#code is like a programming language and the canvases are like coding sheets. The friendly surface of the canvas allows spontaneity and speed for the mash-up ideas, observations and insights from multiple perspectives, made possible by an interlocked set of functions and arguments that pull together design in a single thread of logic based on economic theory and practice.

Creativity and problem-solving under constraints ensure that teams converge relatively quickly on breakthrough solutions they can actually implement.

Raising the bar by lowering the barriersTM

design#code facilitates collaboration with tolerance for the format and quality of design input, which means design teams can engage different stakeholders on different terms and let them contribute whatever they can through documents, memos, notes, pictures, drawings, charts, voice memos and video clips. This social and inclusive method engages stakeholders who would otherwise be left out and those who have very little time to spare during a design effort.

EXHIBIT 1B

This level of analytical rigour is necessary to handle the very peculiar set of challenges in service domains, such as government and healthcare, where, customers of the service are distinct and separate from the users, and several agencies must coordinate deliver the outcomes and experiences expected by customers and users; taxpayers and citizens.

The practice use of design#code

The use of a new approach to design and innovation in services is best explained using examples. A very large aerospace & defense company, with government and commercial businesses, recently used design#code for the following purposes:

- For exploring the potential for a entirely new service, that combines the concept of a bank cheque with that of an air bill, to improve the transparency and efficiency in managing software assets worth over \$500 million.
- For strengthening and hardening the core value proposition of infrastructure services to provide customers superior application performance and affordability on an integrated hosting platform.
- For redefining the concept of conferencing for an extremely diverse set of workspaces, in advance of a implementing major procurement initiative. It included performing a 32-point design audit.

design#code is particularly suited for addressing challenges and opportunities in the government and healthcare, where the following conditions prevail:

- Customers of the service (those who pay for it), are distinct and separate from the users of the service and beneficiaries. Outcomes may conflict not only with each other but also with the user experience.
- Several agencies must coordinate to produce the outcomes and experience necessary for the value to materialize; and they must operate with a single model of the service while maintaining different views.
- All citizens and taxpayers must enjoy the same sets of outcomes and experience, regardless of their ability to pay; they cannot be presented with false choices and compromises and public trust must be protected.

PIGS

Services are post-industrial goods (PIGS) that package and deliver outcomes in the form factor of experience.

Outcomes are the material value created by the service and Experience is the packaging of those outcomes. EXHIBIT 1C

The same outcome can be packaged and offered with different types of experience, mostly determined by when, where and how the outcomes must materialize.

When customers purchase a service, they expect value to materialize in the form of a particular set of outcomes and experiences. EXHIBIT 1D

Good design reduces the risk that the expected value fails to materialize. Great design creates unexpected value for customers by delivering superior outcomes & experiences at a lower total cost of utilization or TCU. EXHIBIT 1E

O-P/E=N

What is a service?

A guaranteed set of outcomes & experiences, fulfilled by the *rendering* of a customer asset, or the *renting* of a resource, at a particular place and time. NOTE 1

Services create value in two fundamental patterns: by rendering assets that customers have, and by renting resources that customers don't have. NOTE 2

Examples of rendering services are postal services, data security, and radiology. Examples of renting services are hotels, movie rentals, and data centers.

Customers pay for both these types of services for two fundamental purposes: to avoid a loss or to affect a gain; or both. They do so in the context of assets they own (seeking protection or coverage) and those that they rent (seeking enhancement and leverage).

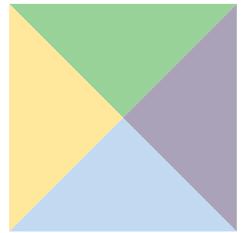
EXHIBIT 2A
2B

Customers pay for rendering services to enhance or protect assets they have ownership of. For example, finance and administrative services help enhance cash flow and purchasing abilities; security and maintenance services help protect the economic value of personal and business assets.

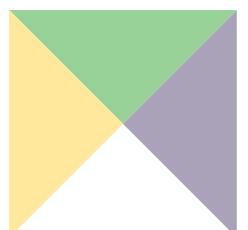
Customers pay for renting services to seek coverage or leverage from having particular access to particular resources (assets they don't own). For example, a hotel fitness center provides coverage for the daily exercise routine of a guest to he doesn't break his routine during business travel; on-demand computing capacity at a tier-1 data center provides leverage for a compute-intensive application to handle surges in demand. NOTE 3

EXHIBIT 3A All services can be reduced to four primary classes of value propositions based on four types of customers outcomes. Let's take a few examples to understand this better. NOTE 4

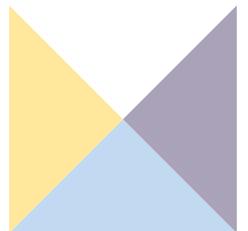
Using this system, 256 different types of service business models can be expressed through design, based on the concept of market spaces and adjacent business models.



Four classes of value propositions
(interlocked)



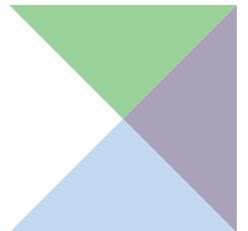
Render
Enhancement/Protection



Rent
Coverage/Leverage



Avoid Loss
Protection/Coverage



Affect Gain
Enhancement/Leverage

Why need a post office?

In most cases, services provide more than one of the four types of value propositions, although one or the other may dominate. Let's take the example of a common service, such as the postal service, which creates value by delivering letters and packages. In its simplest sense, it is a rendering service.

The letter or package arriving at a specific address within a specific time, is the outcome customers pay for. The value of item is enhanced or protected by its timely presence at that particular address. It could be a birthday gift, a job application, a product sample, or a tax payment.

The full spectrum of value provided by the postal service is better understood by examining how the need for the service is created in the first place.

Possibly, senders could themselves carry or transport the item; have a friend or family member do the favor; or, since items are often addressed to persons, the sender and receiver could find themselves at the same location at the same time.

However, it is likely that the senders may already be committed to do something else or be elsewhere, so they can't deliver the item by themselves; at least not on time. They may not be willing to spare the time and effort to do so even if they're free.

It may be too tedious or cumbersome to make the journey, requiring planning and scheduling to distant and unfamiliar addresses. The return journey by itself costs time and effort, with no apparent value.

Also, enterprises, large and small, need to send documents and artifacts on a frequency and scale that requires the development and maintenance of capabilities and resources, with infrastructure and facilities that require a substantial amount of capital.

The postal service undertakes to develop and maintain capabilities and resources that enhance and protect the value of customer assets, by delivering them on time, safely and securely to an address. They also redirect and forward the items using a registry of addresses and instructions.

Postal Services (*continued*)

The capabilities for the collection, distribution, sorting, and addressing of mail, along with a simple postage-based payment system, are integral parts of the value proposition. Special-handling of items and insurance are also rendering capabilities.

The public trust in the postal address, time-stamp and proof of delivery are valuable to customers for various purposes. The service maintains resources on the ground that provide independent validation and certification at the points of shipment and delivery. The reputation and trust are “resources on rent”.

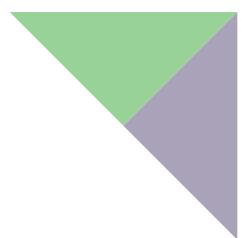
The money order payment system works like a third-party escrow bank account with a store-and-forward messaging service. Senders store cash in a trusted account until it is safely withdrawn by receivers with proof of payment available to both sides.

Money orders may be considered simply as payment processing or rendering. However, the true value proposition is that of “resource on rent”, since the sender doesn’t have to open a credit card or bank account and the postal service maintains a trusted resource for public use, with the necessary cash reserves and deposit insurance.

Businesses use the service as an extension to their supply-chain and logistics channels, for example, to process the return of items they have sold. In many cases the postal service is the most affordable way to reach remote addresses. The postal address system is the perhaps most universally used “resource on rent”.

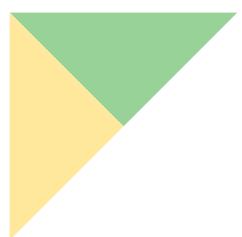
Companies such as FedEx extend the postal services business model further by offering outcomes and experiences tailored for the needs of enterprises, along with higher service levels of guarantees on delivery.

Enterprises have corporate accounts that their employees can use to pay for the services, usually at significantly discounted rates for volume.



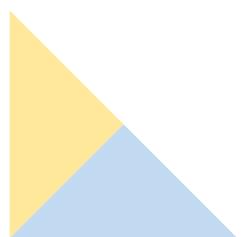
Rendering
Enhancement

Invoices on client's desk for payment



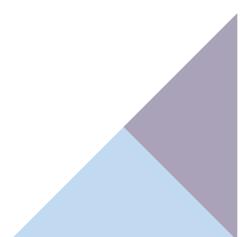
Rendering
Protection

Samples safely reach testing lab on time



Renting
Coverage

Certified delivery with insurance



Renting
Leverage

Prompt handling of returned items

FedEx Office

Basic tasks such as the scheduling of shipments and generating shipping labels are integrated directly into business applications, along with the tracking of shipments and payments.

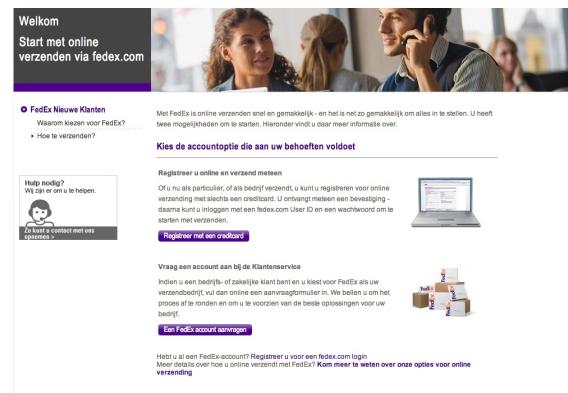
FedEx also offers billing and invoicing services so that customers can “track the status of invoices, dispute charges, download invoice data, and create payment instructions over the Internet”.

With FedEx Office customers get copy and print services which are often complementary with the need for distribution. These capabilities and resources become an extension of enterprise assets and are entirely managed as a service by FedEx.

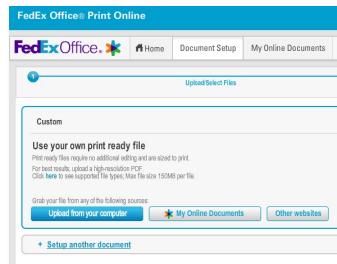
Users have on-demand access to a wider set of options than what their enterprises could afford to operate and maintain in-house. FedEx makes sure it's global footprint is large enough to support them from just about any place, any time zone, and now any platform with the integration of cloud and mobile.

Let's take the example of managed print service to understand the design#code service logic, starting with the Eight Design Perspectives:

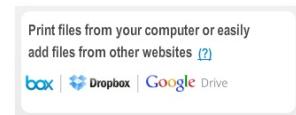
Customer
Agency
Capability
Asset
Access
Resource
User
Agent



Account administration and support



Mobile and desktop integration



Integration with cloud-based storage



Printing directly to the FedEx facilities



High-speed high-volume production facilities

Managed Print Services

One Bank plans to increase deposits through a nationwide marketing campaign targeting new and existing customers. Coordinating the smooth production & flow of marketing assets across the campaign theater and the retail network is a major challenge. Marketing collateral, forms and other documents must be readily available to staff at every touch point and interaction with bank customers. The staff should be able to customize and print materials on demand, locally at branches, stores, and events. They do not have to depend on the timely dispatch of supplies from a central HQ, which could costly and delayed, or result in overstock and waste.

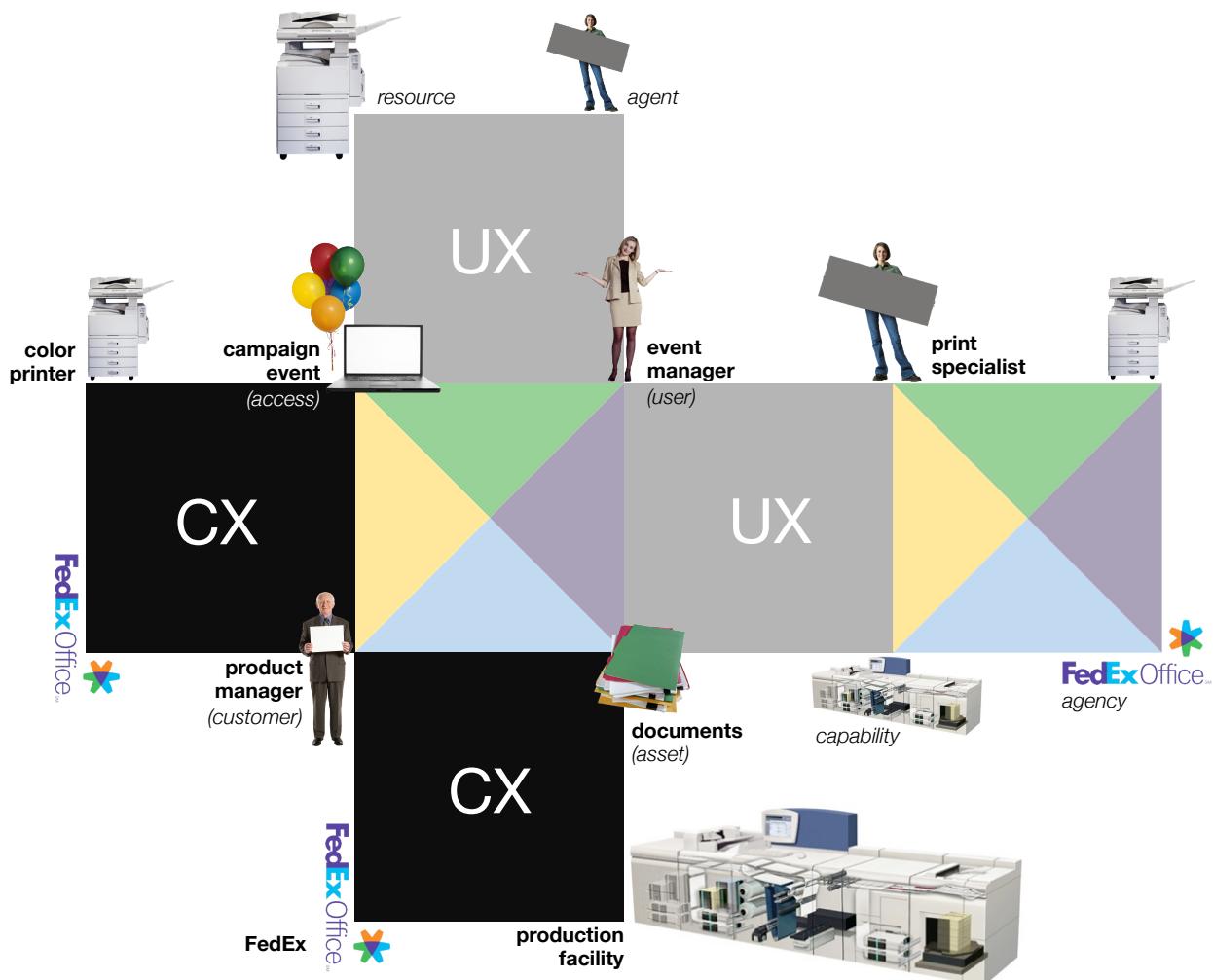


EXHIBIT 3C The need is for a higher quality of dialog and interaction with customers and zero opportunity costs. Print jobs with special sizes and formatting are securely transmitted to high-tech printers at the nearest FedEx production facility that guarantees output ready for pick-up within 30 minutes by bank staff with an employee ID. FedEx directly bills a special corporate account so local staff don't have administrative burden. FedEx staff provide onsite for branch-level events support, so bank staff (A) more time with customers.

Think Inside the Box™

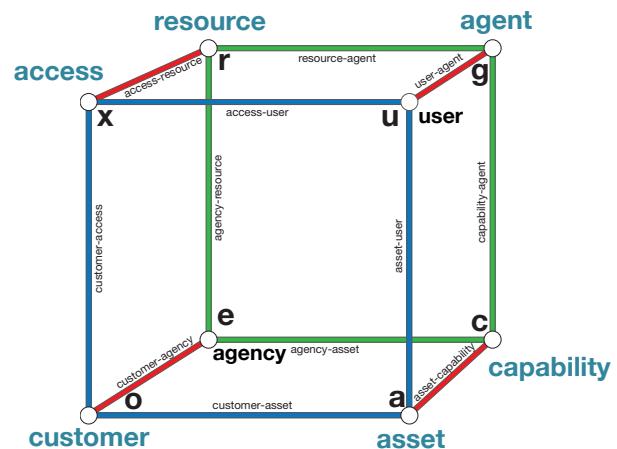
design#code provides a universal definition of services based on Eight Design Perspectives (corners of the cube) and the resulting Twelve Design Arguments (edges). There are two Perspectives to each Argument.

Desired outcomes establish and originate (**o**) the need for any service, and since different customers may subscribe to the same outcome, outcomes are the proxy for customers in the design#code service logic. NOTE 5

Activities, conditions & tasks (**xoa**) frame the need for service (**aox**) from the outcomes perspective. The need is then further expressed in terms of needy assets (**au**) and needed access (**xu**). Users are beneficiaries and agents of the customer; they receive the privilege of using the service and usually the direct benefits, based on their relationship with customers.

User personas (**aux**) provide insight into the motivations and expectations of users, based on the dependency and control (**ua**) users have over needy assets and their mobility and presence (**ux**), which also defines needed access. Use personas generate and shape the actual demand for a service, and frame the need from the experience perspective.

NOTE 6



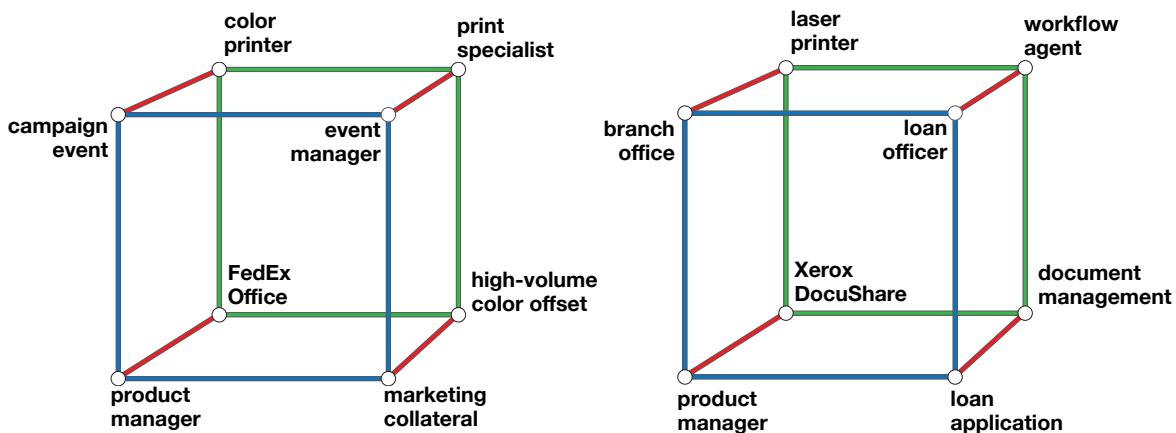
Customers fund or pay the service provider or agency (**oe**) to fulfill the need by rendering the needy assets (**ca**), or by providing needed access to the ‘resources on rent’ (**xr**). The agency guarantees (**eo**) specific sets of outcomes and experiences at particular times and places (and platforms).

Agencies develop and maintain capabilities (**gce**) and resources (**gre**) with the capacity to fulfill the need. They employ agents, with the authority and control to manage the service assets; and the responsibility for dialog and interaction with users (**ug**). Agents may themselves embody capabilities and resources (e.g. kiosks for inquiry, purchase, and printing of tickets).

Agent personas (**grc**) are configurations of humans and machines, and their capacity for dialog and interaction (**gua**, **gux**) is determined by user personas, likely fail-points and exceptions (**uac**, **uxr**), and the demand tolerance (**cau**, **rxu**) necessary to provide a certain quality of experience.

The closed geometry of the cube forces you to think about why the service is a service; how, when, where and for who the service creates value, and in what context. It is like solving an equation with the 12 Arguments and 8 Perspectives.

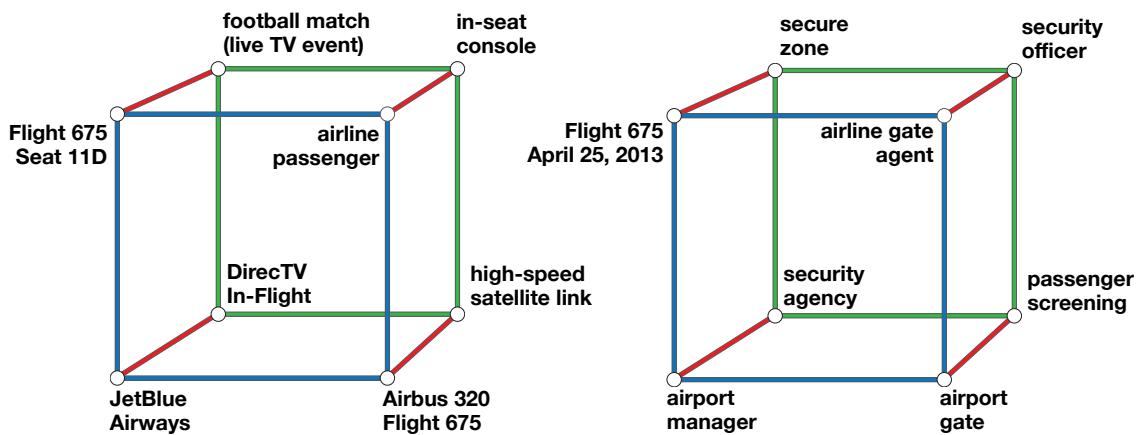
Examples 1-4



1 EVENT PRINTING

2 DOCUMENT MANAGEMENT

- Marketing collateral prepared by the Bank's creative staff need to be ready for events at branches, stores and other venues, in desired volumes, formats and sizes. Event managers interact with print specialists to proof-read materials for high-quality printing. Wireless color printers are set-up on site to support spontaneous printing needs.
- Loan applicants electronically fill out details on forms for a loan application. DocuShare Workflow agents automatically check, collate and print the completed document set, directly to the loan officer's desk. To avoid error and desktop clutter, the agent looks up a calendar and queues the print job an hour before the appointment with the applicant.

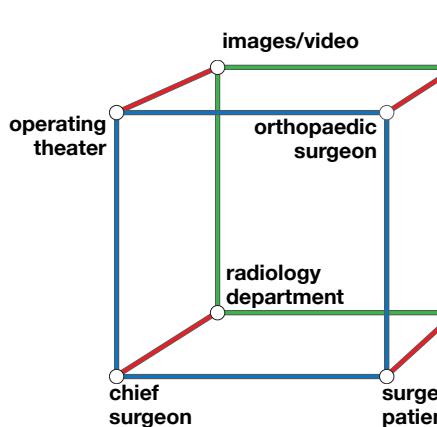


3 IN-FLIGHT ENTERTAINMENT

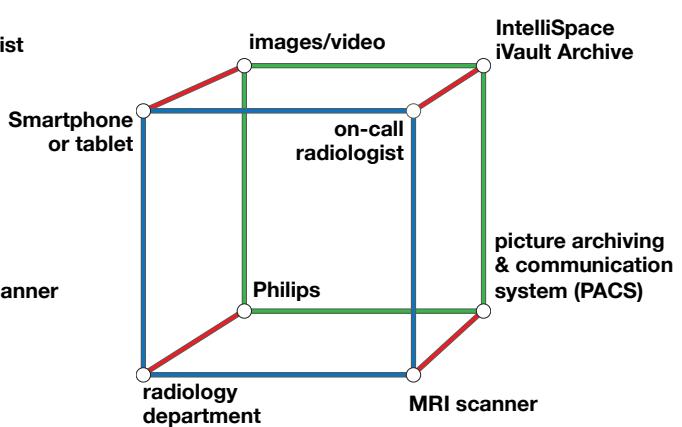
4 AIRPORT SECURITY

- To maximize revenues on long-haul flights across the United States, JetBlue contracts DirecTV to stream live pay-per-view content through satellite. The interactive consoles of the JetBlue In-Flight Entertainment System play host to passengers, helping them, select, purchase and view live events on TV. JetBlue maximizes revenue per available seat-mile.
- Take-off and landing rights at particular gates and terminals is effectively what airlines rent from airports. Airport managers guarantee that boarding areas will be secure zones using which airline agents to quickly and safely board passengers for the flights to be on time. Security officers screen passengers to effectively create a valuable resource on rent.

Examples 5-8

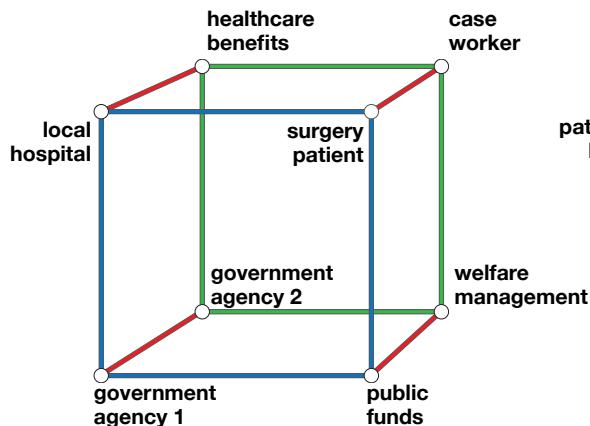


5 RADIOLOGY

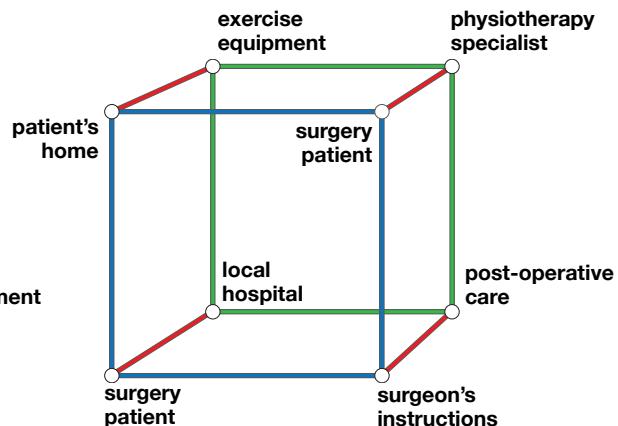


6 IMAGING SYSTEM

- The patient is under the custody and care of the surgery department. The wellness and welfare of the patient generates cash-flow, even in non-profit systems. The MRI system scans the patient (rendering) and makes the images and video readily available to the orthopaedic surgeon (user) in the OT or elsewhere. Here, the radiologist is the agent. NOTE 7
- The MRI machine is the asset from which the iVault agent pulls images and video through PACS capability, to develop and maintain an easily a valuable resource that the radiologist can make use from any device or platform. Philips is the service provider that owns and operates the imaging service and guarantees outcomes to the radiology department.



7 BENEFITS ADMINISTRATION



8 POST-OPERATIVE CARE

- Public funds are used to provide healthcare benefits to the surgery patient who is entitled as a citizen to receive them at the local hospital of their choice. Case workers are agents entrusted with responsibility of spending the money wisely under public trust. They work with patients to arrange for the timely delivery of care and set up the necessary payments.
- The local hospital delivers post-operative care at the patient's home for a full and speedy recovery, based on instructions the orthopaedic surgeon has provided. Physiotherapists at the local hospital, develop an exercise routine for the patient and install equipment she needs at her home, according to the protocols and guidelines defined by authorities.

Functions and Arguments

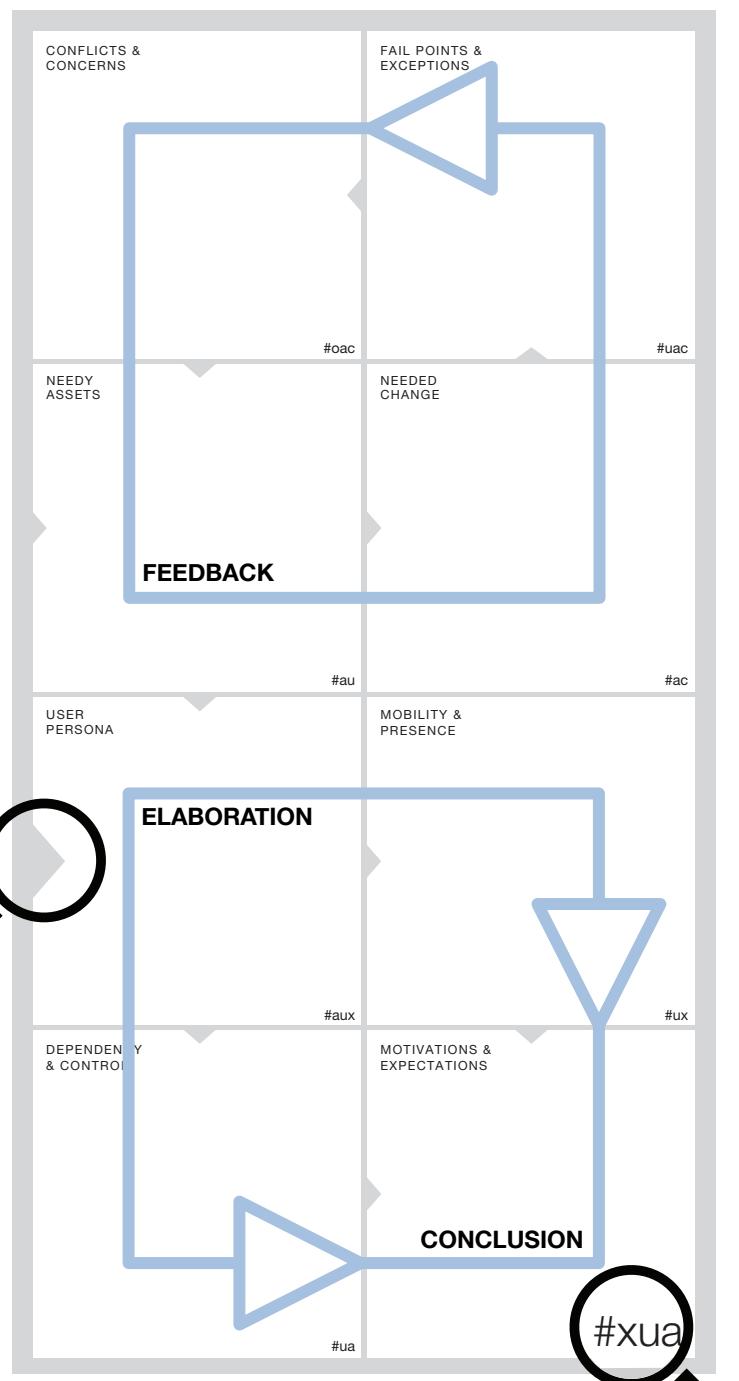
design#code is like a programming language for service design with a set of 32 functions that accept one or more of the 12 design arguments. Each function represents a well-defined aspect of service design. The functions are related to other by the d#c service logic. Each function is independently addressable using a hash tag.

For example, the function *Motivations & Expectations*, with the hash tag #xua, reads from *Dependency & Control* and *Mobility & Presence*; writes to *Dialog & Interaction*, and accepts User-Asset (ua) and User-Access (ux) as arguments.

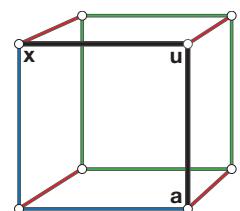
The notches indicate Read/From and Write/To relationships between functions.

There are three interlocking patterns: Elaboration, Conclusion and Feedback. For example, *Mobility & Presence* and *Dependency & Control* elaborate *User Persona* and conclude on *Motivations & Expectations*.

Needy Assets anchors a feedback loop that includes three other functions: *Needed Change*, *Fail Points & Exceptions* and *Conflicts & Concerns*.



8 of 16 design functions of the design#code UNFOLD Canvas



$$\#xua = f(ua, ux)$$

Canvas Logic

The 32 design functions are spread across the two canvases, UNFOLD and FOLD, in an unbroken thread of service logic. Each canvas has 16 functions in a 4x4 grid of interlocked panels. The diagonals, elbows, quartets and quadrants the panels form, are “algebraic” expressions based on the geometry of the cube.

The UNFOLD canvas covers all aspects of defining the customer's need for a service. The FOLD canvas covers the fulfillment of the need with the best possible solution. Each canvas has a user manual with definitions, guidelines and checklists, for each function, to implement the design logic. Together the canvases form a service design package.

EXHIBIT 4A

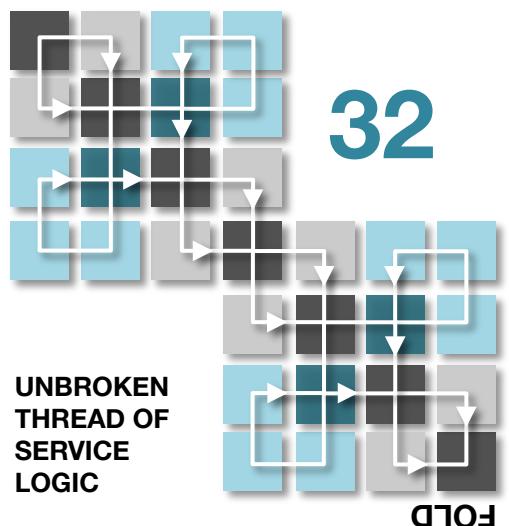
4B

Teams and individuals place their ideas, observations and insight on the two canvases, in ways that suits their source, situation or style: write a note or memo; formulate a statement; sketch a diagram or attach a photo; write a story; or a reference or URL.

Placing a piece of input on a canvas panel, encodes or tags that content with the certain defining properties, so others can elaborate, conclude or deliberate on it (feedback loop). Lines of thought, discussion threads, and stories quickly develop, making the design progressively richer and more complete. This makes the overall design effort asynchronous, inclusive, fast and parallel.

Designs are multi-threaded, with each thread representing a distinct but related value proposition. For instance, the healthcare examples 5-8, would all be part of a single design package.

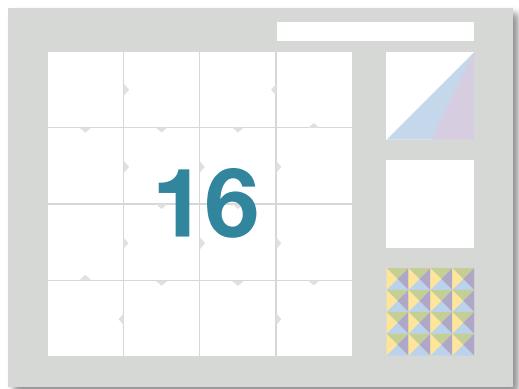
UNFOLD



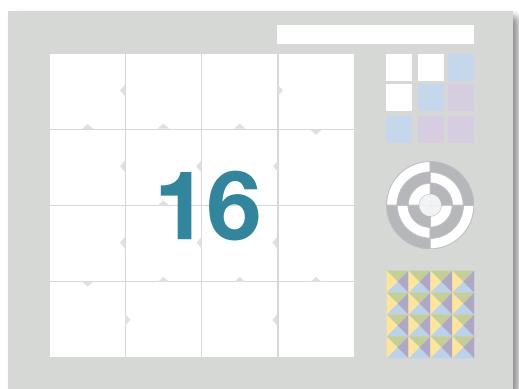
UNBROKEN THREAD OF SERVICE LOGIC



UNFOLD CANVAS



FOLD CANVAS



Service Design Package

The service design package (SDP) contains the information and instructions for the planning and implementation of the design by groups and teams who will deliver and support the service.

An SDP is rich and complete when attached with analysis & research; policies, procedures & guidelines; and standards & regulations.

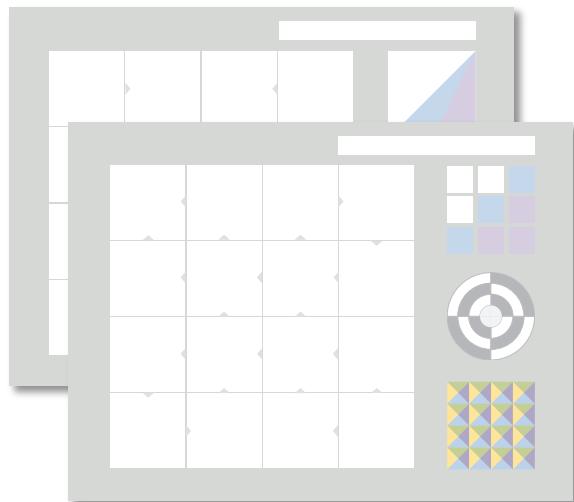


EXHIBIT 5A

The SDP represents the collective know-how of a service enterprise on how best to deliver a particular set of outcomes and experiences. .

The SDP is the definitive blueprint that can be used over the lifecycle of the service. The SDP can be readily integrated into frameworks such as Agile Scrum. It provides the single “instruction set” that can be used to communicate and coordinate across disciplines and teams, so the everybody is “on the same page”.

EXHIBIT 5B
5C

For example, customers may develop UNFOLD and use it seek bids and proposals from service providers, who then respond with the FOLD. Bidders with the FOLD that best matches the UNFOLD are selected for further negotiations. Making sure service providers have invested in design, can help reduce the costs & risks hidden in large proposals and contracts.

EXHIBIT 5D
5E

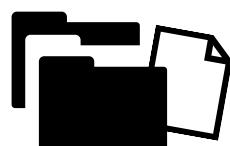
A collection of SDP forms the design portfolio that underwrites its strategy and portfolio of service. Having a design portfolio makes it easier to propagate ideas, fixes and solutions across the service enterprise.



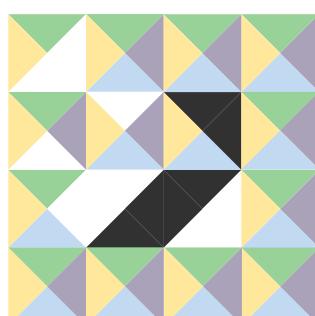
Check for quality & integrity of design



Enrich it with additional analysis & research

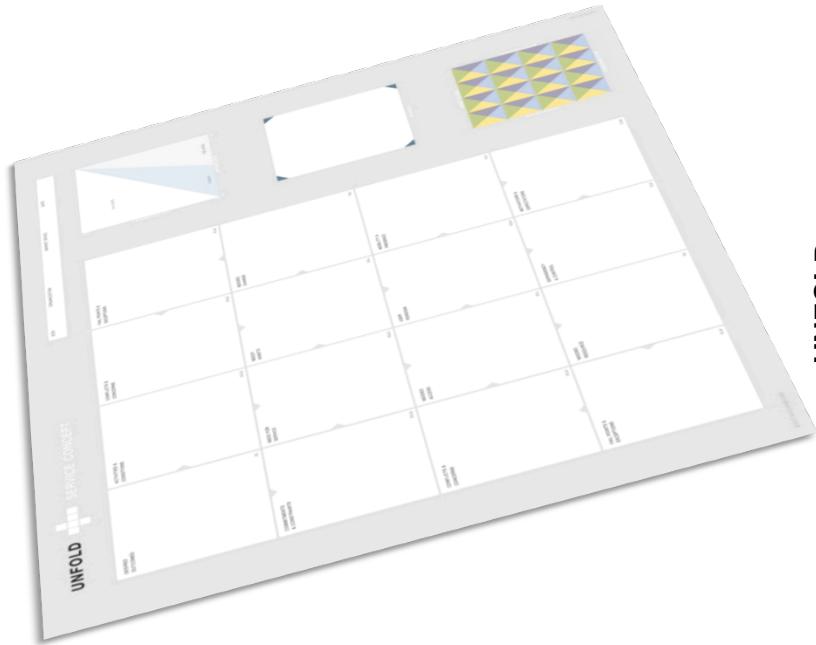


Publish and distribute it to groups and teams

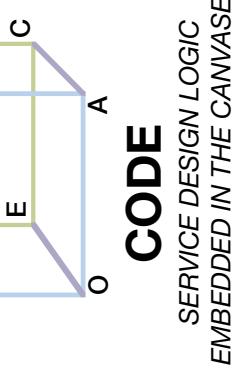


Every design is encoded with the business model and strategy that it implements and supports. This is like the DNA of the service

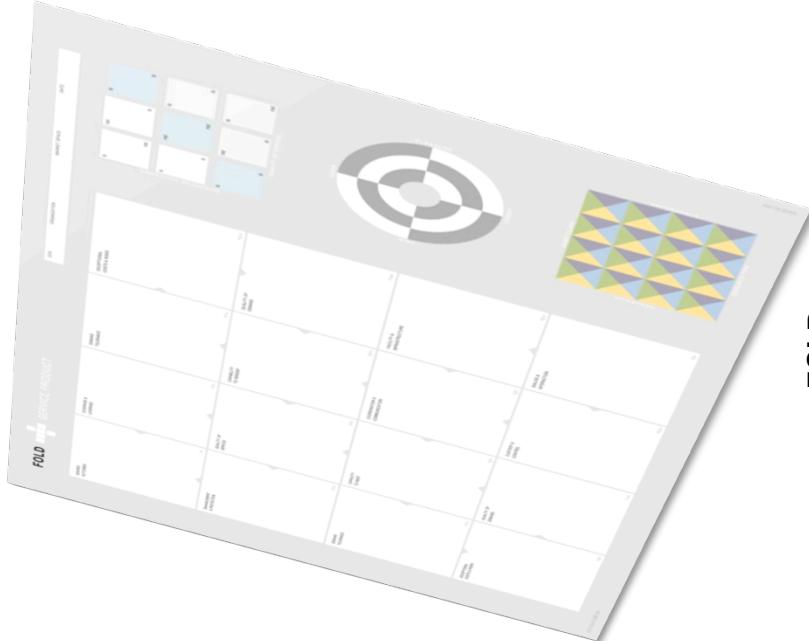
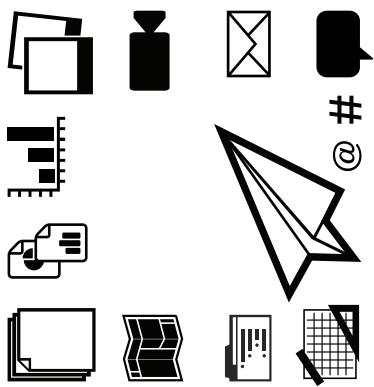
EXHIBIT 1A Code, canvas and content



**UNFOLD
CANVAS**
FOR DEFINING
THE SERVICE
CONCEPT



CONTENT
IDEAS, OBSERVATIONS,
ANALYSIS & INSIGHT



**FOLD
CANVAS**
FOR DEFINING
THE SERVICE
PRODUCT

CODE
SERVICE DESIGN LOGIC
EMBEDDED IN THE CANVASES

EXHIBIT 1B

Raising the bar by lowering the barriers™

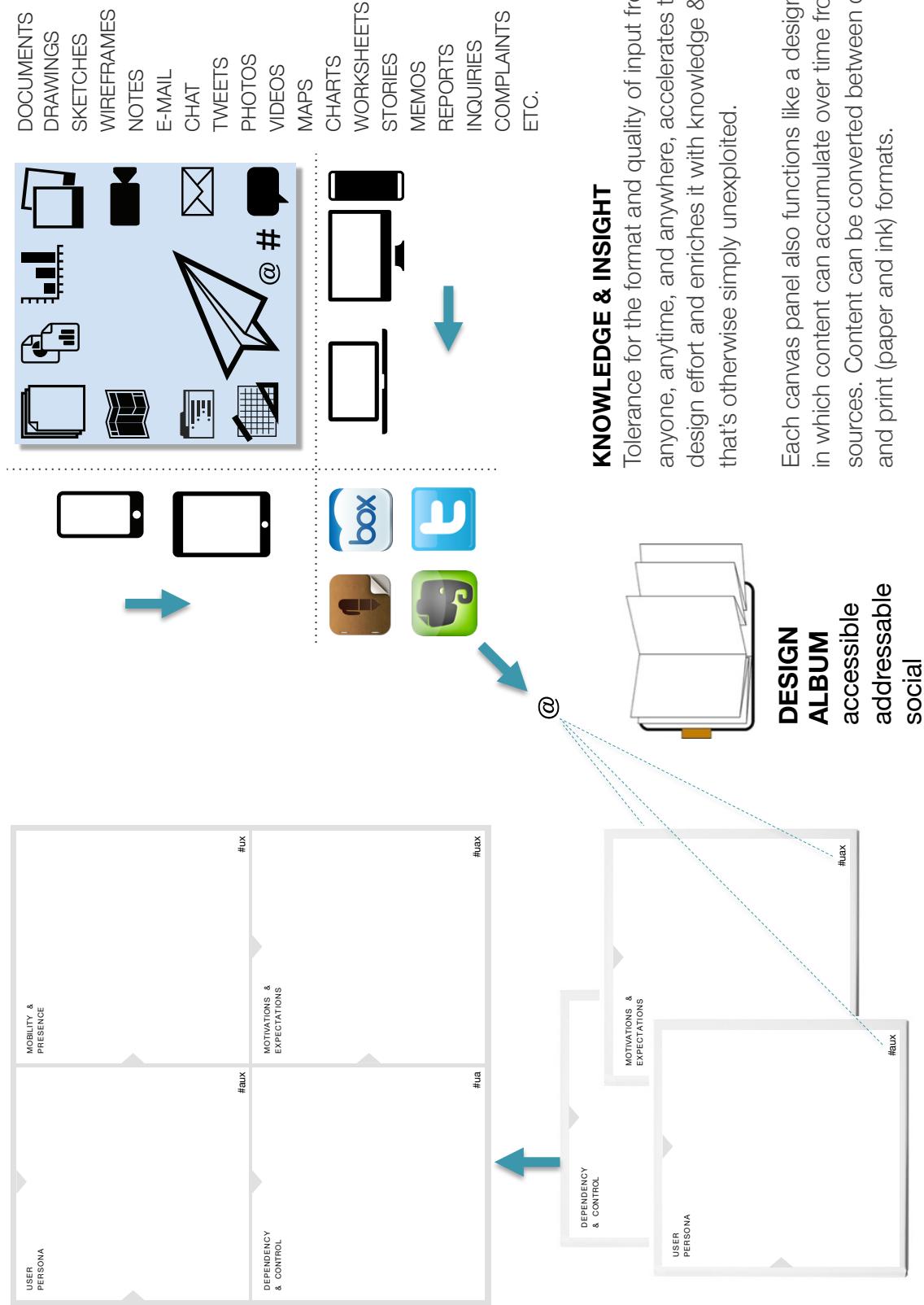


EXHIBIT 1B

THREE WAYS DESIGN ALBUMS WORK LIKE CONTENT BUFFERS



EXHIBIT 1B

THREE WAYS DESIGN ALBUMS WORK LIKE CONTENT FILTERS

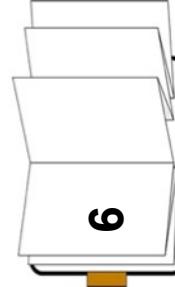
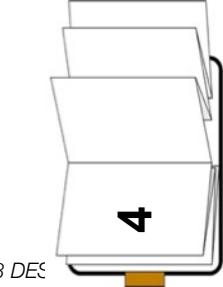
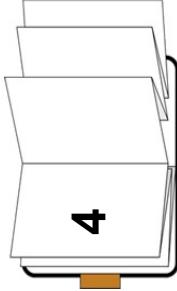


EXHIBIT 1B

THE DESIGN DOSSIER

4



FRONT SIDE OF CANVAS PANEL

RESEARCH REPORT

Latest relevant research reports from a variety of industry analysts are made available to the canvas and its users for immediate preview and subscription-based access.

ANALYST PROFILE

Click to view short profile including photo of the analyst who wrote the featured research report

RATINGS

Click to see detailed comments of other users indicating how useful they found this particular research report in the context of the particular design album.

RELATED RESEARCH

Click to browse through other research reports and papers found to be highly relevant to the featured report and the content on the canvas album

E-MAIL OR PHONE CONTACT

Click to initiate contact with the analyst, with a summary of the design problem and requestor information automatically attached to provide the contacted analyst sufficient context, in addition to any questions or comments entered by the requesting user so the analyst can be prepared to help.

HASH TAG

Every canvas has it's own unique email address. And every canvas panel has a hash tag that allows content to be pushed directly to the design album. The content is paid for by a customer's subscription or sponsored by commercial enterprises with an interest in engaging the owners of canvases.

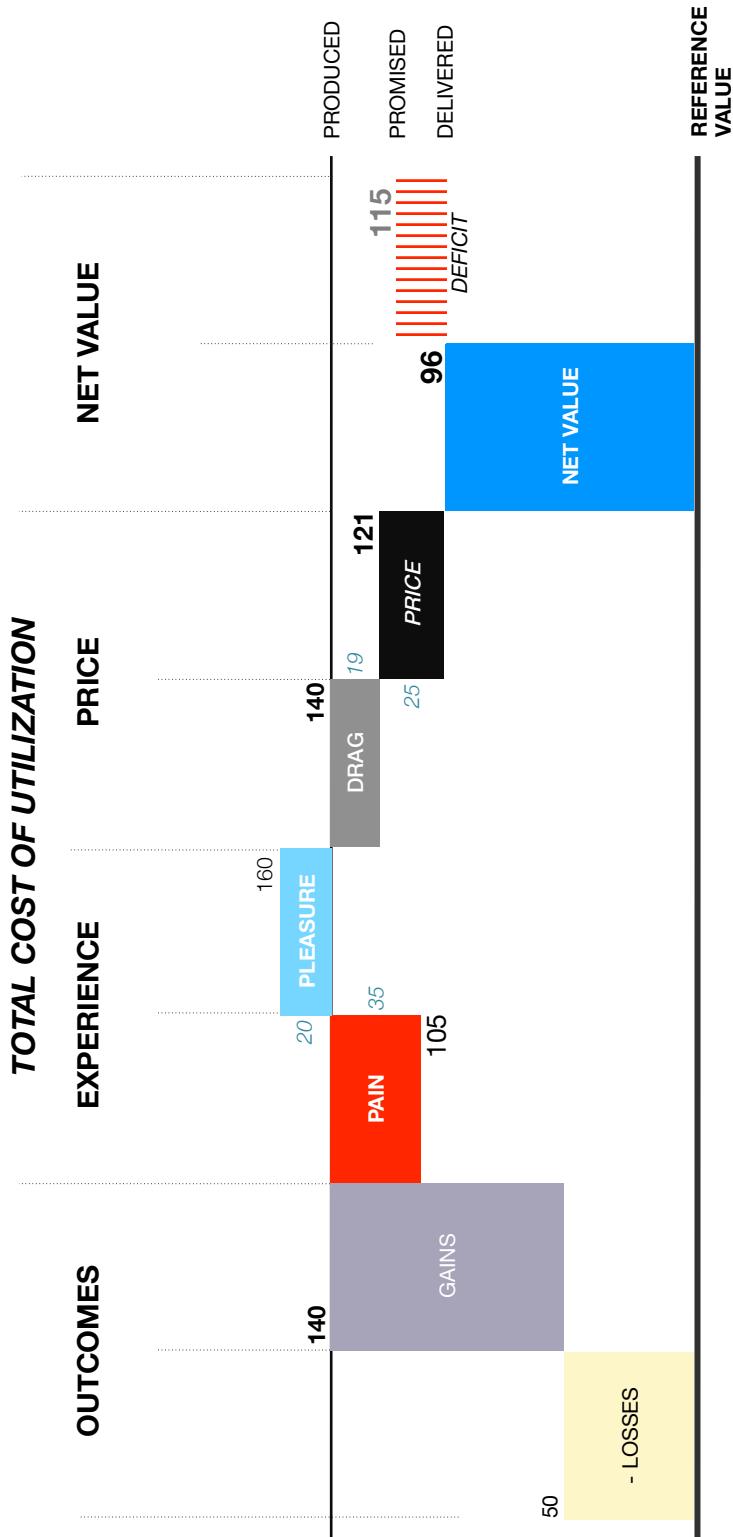


REVERSE SIDE OF CANVAS PANEL

© 2013 DESIGN#CODE

EXHIBIT 1C

OUTCOMES – PRICE/EXPERIENCE = NET VALUE



O-P/E=N, the business logic for services

When customers buy a service, they expect value to materialize in the form of a particular set of outcomes & experiences. Good design reduces the risk the expected value fails to materialize. Great design creates unexpected value for customers by delivering superior outcomes & experiences at a lower total cost of utilization or TCU.

O-P/E=N is the governing principle for creating unexpected value that attracts a higher quality of demand, in a virtuous cycle that increases price tolerance and boosts margins. Outcomes are the “goods” delivered by a service. Experience is the “packaging”. Price/Experience = TCU

EXHIBIT 1D

Without good design: lower value at a lower price

PAIN is in terms of extra effort, time, or money spent simply to purchase and use the service as intended, by enrolling, engaging, entrusting & enforcing with the service provider. Customers have tolerance for PAIN but it depends on the outcomes involved i.e. prospective gains or avoided losses. The PAIN/PLEASURE ratio is the inverse of quality of experience. PRICE is simply financial pain that customers are willing to accept. It feels less painful when the quality of experience is good; more painful when it is bad, making customers more sensitive about overall costs.

CUSTOMER IS UNHAPPY

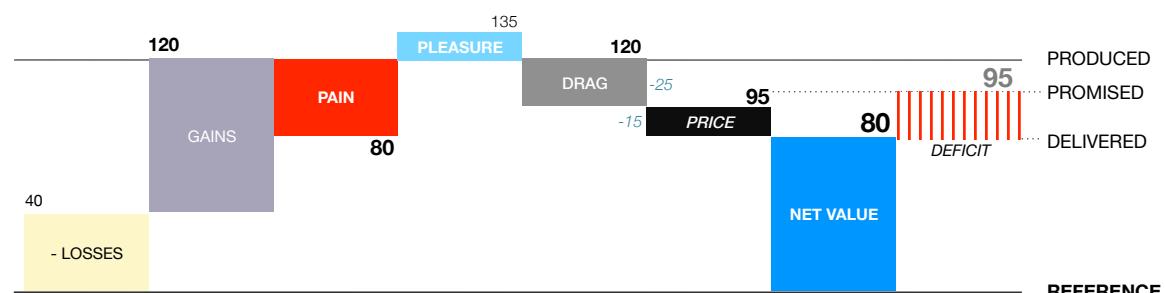


$$\begin{aligned} \text{NET VALUE} &= (-\text{losses} + \text{gains}) - \text{price} * (\text{pain}/\text{pleasure}) \\ &= (50+90) - 25 * 35/20 \\ &= 96 \text{ units*} \end{aligned}$$

The relationships between these factors are non-linear, therefore indiscriminate cost-cutting simply to reduce price can adversely affect the quality of outcomes and quality of experience; which in turn adds to the value deficit, increasing margin pressure, in a vicious cycle.

Conversely, simply offering a higher quality of experience may increase the TCU and reduce Net Value. It is so very important to understand to ensure customer outcomes justify the quality of user experience and provide support for pricing.

CUSTOMER IS WORSE OFF



$$\begin{aligned} \text{NET VALUE} &= (-\text{losses} + \text{gains}) - \text{price} * (\text{pain}/\text{pleasure}) \\ &= (40+80) - 15 * 40/15 \\ &= 80 \text{ units*} \end{aligned}$$

EXHIBIT 1E

With good design: higher value at a lower TCU

Service design enhances the quality of experience by making things less painful and more pleasurable with well-designed activities, interactions, facilities & infrastructure for the delivery and support of services. Service design enhances outcomes with the superior rendering of customer assets, or providing access to needed resources.

But not all customer outcomes weigh the same i.e. carry the same purchasing power. There are diminishing returns in terms of Net Value from the further fulfillment of certain customer outcomes.

CUSTOMER IS NOT UNHAPPY



$$NET\ VALUE = (-\ losses + gains) - price * (pain/pleasure)$$
 $= (50+90) - 25 * 20/20$
 $= 115\ units^*$

That's why it is important to focus design efforts on those outcomes that have the greatest potential to add value from the customer's perspective. Good design is about rejecting false choices and compromises, while willingly accepting constraints. Adopting this thinking can lead to the mutual good of the customer and service provider organizations.

CUSTOMER IS HAPPY



$$NET\ VALUE = (-\ losses + gains) - price * (pain/pleasure)$$
 $= (50+90) - 25 * 20/35$
 $= 129\ units$

EXHIBIT 2A

Affected gains by the rendering of a needy (customer-owned) asset

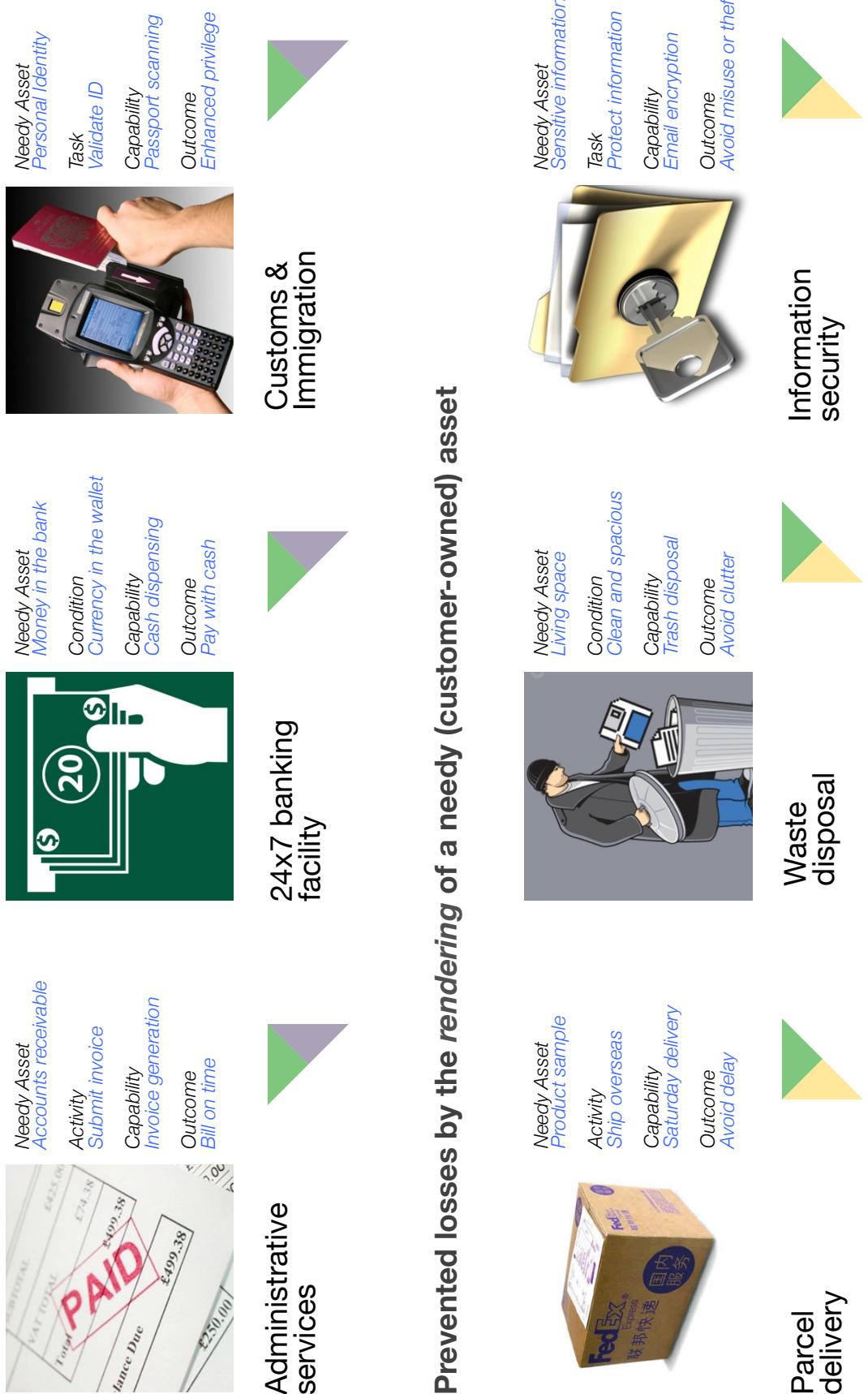


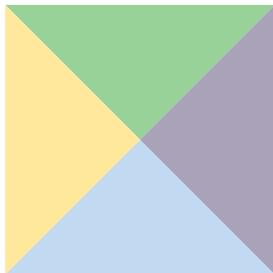
EXHIBIT 2B

Affected gains by the *renting* of a needed resource)



EXHIBIT 3A

Four classes of service outcomes



The materiality principle

People don't buy 1/4 inch drills. They buy 1/4 inch holes.

Dr. Theodore Levitt
Harvard Business School

Losses avoided from the monitoring, maintenance protection, recovery and repair of customer assets. Customers seek to avoid damage, depreciation or theft that could impair the full & proper use of their assets or depreciate their economic or social value.

PROTECTION

- LOSS

COVERAGE

Losses avoided from having assured access to needed resources at a particular place, time or platform. Customers avoid penalties, surcharges, fines and opportunity costs associated with defaults or deficits due to shortfalls or shortcomings in capacity.

RENDER

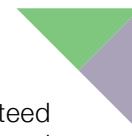


Services are guaranteed sets of outcomes and experiences, fulfilled by the rendering of a customer asset or the renting of a resource, at a particular place and time. Outcomes are in terms of avoided losses or affected gains from utilizing the service.

RENT



Gains affected from having the value-creating potential of customer-owned assets boosted through new ways to make them useful and productive. Customers pay for the changes to their assets rendered by the service, increasing their economic/social potential



ENHANCEMENT

GAIN



LEVERAGE

Gains affected from having assured access to needed resources at a particular place, time or platform. Customers leverage the rented assets to pursue outcomes made possible by the additional capacity, strength, or span they get from the resources on rent.

EXHIBIT 3B

Four aspects of service experience

Enroll, Engage, Entrust and Enforce are four aspects service experience that determine the net value of a service from a particular set of outcomes, in combination with price.

Each aspect of the service experience must be considered in any service design effort to ensure the customer outcomes will materialized as expected; improved but not diminished.

ENROLL



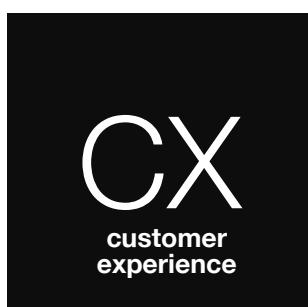
Easy-to-buy. Fair & simple contracts with options & pricing that suit a variety of outcomes & experiences. Easy for users to sign-up & activate privileges through a smart & fast registration process. Installation is fast & cheap with minimal setup costs for customer to bear.



Capacity, continuity & care are available as assured for customers to entrust to the service activities, outcomes & users; regardless of what penalties are enforceable in contracts for performance failures. Agents, resources, facilities & infrastructure are dependable, safe & secure.

ENTRUST

Buyer experience (CX), should be distinguished from user experience (UX) because those who pay for the service are not always also its users.



ENGAGE



Few conditions/constraints on demand, with tolerance for variation or reallocation of purchased units across users, locations & periods. User interaction is painless with agents, resources, facilities & infrastructure. It's effortless to provide custody and control of needy assets



Agents have the capability, commitment & control for prompt & effective action to advise & assist users; to fix problems & errors; or any, unexpected situations. The burden of enforcing any of the contractual obligations is not placed on customers or users or any third-parties

ENFORCE

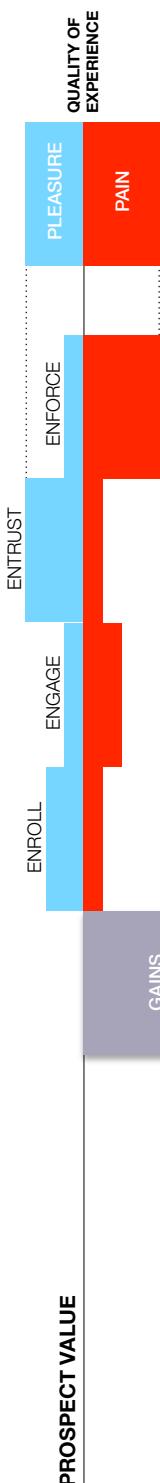


EXHIBIT 3C

Service design is the systematic engineering of outcome-experience sets

Loses avoided from the monitoring, maintenance protection, recovery and repair of customer assets. Customers seek to avoid damage, depreciation or theft that could impair the full & proper use of their assets or depreciate their economic or social value.

PROTECTION



PEAK-END RULE

The Pain/Pleasure Ratio is the inverse of the overall quality of experience felt across Enroll, Engage, Entrust and Enforce. The best/worst levels (peaks) of experience plus outcomes, together affect the customer's perceptions of value. This is the Peak-End Rule. Tolerance for poor quality of experience varies with types of outcomes

GAINS

Losses avoided from having assured access to needed resources at a particular place, time or platform. Customers avoid penalties, surcharges, fines and opportunity costs associated with defaults or deficits due to shortfalls or shortcomings in capacity.

COVERAGE

- LOSSES
- LOSSES

Gains affected from having the value-creating potential of customer-owned assets boosted through new ways to make them useful and productive. Customers pay for the changes to their assets rendered by the service, increasing their economic/social potential.

Easy-to-buy. Fair & simple contracts with options & pricing that suit a variety of outcomes & experiences. Easy for users to sign-up & activate privileges through a smart & fast registration process. Installation is fast & cheap with minimal setup costs for customer to bear.

ENHANCEMENT

Few conditions/constraints on demand, with tolerance for variation or reallocation of purchased units across users, locations & periods. User interaction is painless with agents, resources, facilities & infrastructure. It's effortless to give custody & control of customer assets.

LEVERAGE

ENROLL

DESIGN FOR OUTCOMES



DESIGN FOR EXPERIENCE



REFERENCE VALUE

This is the default value from which customers assess the value of using the service. Its what they are left with if they decide NOT to use the service. The sum of all the affected gains and avoided losses minus the total cost of utilization must greatly exceed this reference value for the service to be truly worth using

Agents have the capability commitment & control to prompt & effective action to advise & assist users; to fix problems & errors; or any unexpected situations. The burden of enforcing any of the contractual obligations in not placed on customers or users or any third-parties

ENFORCE

Capacity, continuity & care are available as assured for customers to entrust to the service activities, outcomes & users; regardless of what penalties are enforceable in contracts for performance failures. Agents, resources, facilities & infrastructure are dependable, safe & secure.

ENTRUST



Think Inside the Box™

EXHIBIT 4A

The canvases are embedded with tools for analyzing, framing, validating and encoding design

The core design logic embedded in the interlocked panels of the canvas is complemented by a set of tools to prioritize customer needs, set design objectives, maintain focus, and ensure the quality & integrity of design before encoding it.

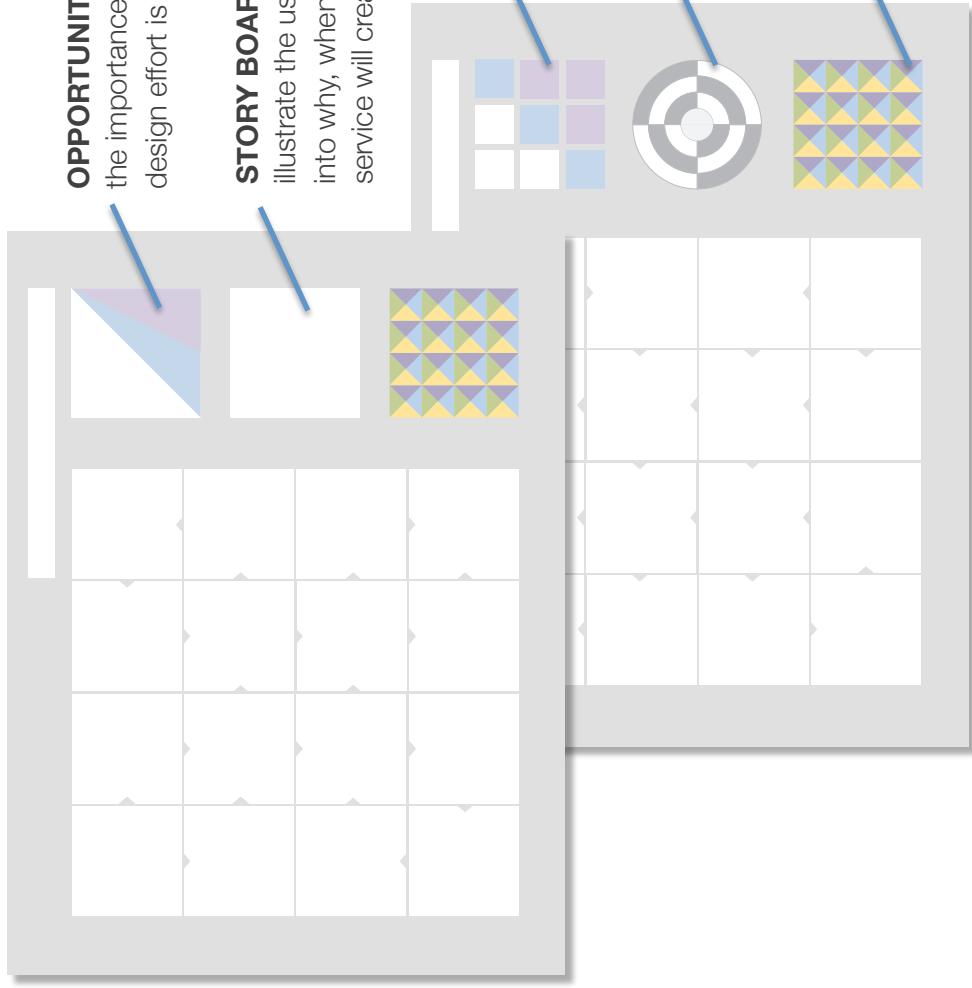


EXHIBIT 4B

Snapshots of User Manuals for the canvases

**USER MANUALS
WITH CHECKLISTS**

Each canvas has a
title.

definitions, guidelines and checklists, for each function, to implement the design logic. Together the canvases form a service design package.

Each Manuals also covers the analytical tools and worksheets using which teams plan and conduct the design effort in parallel work streams.

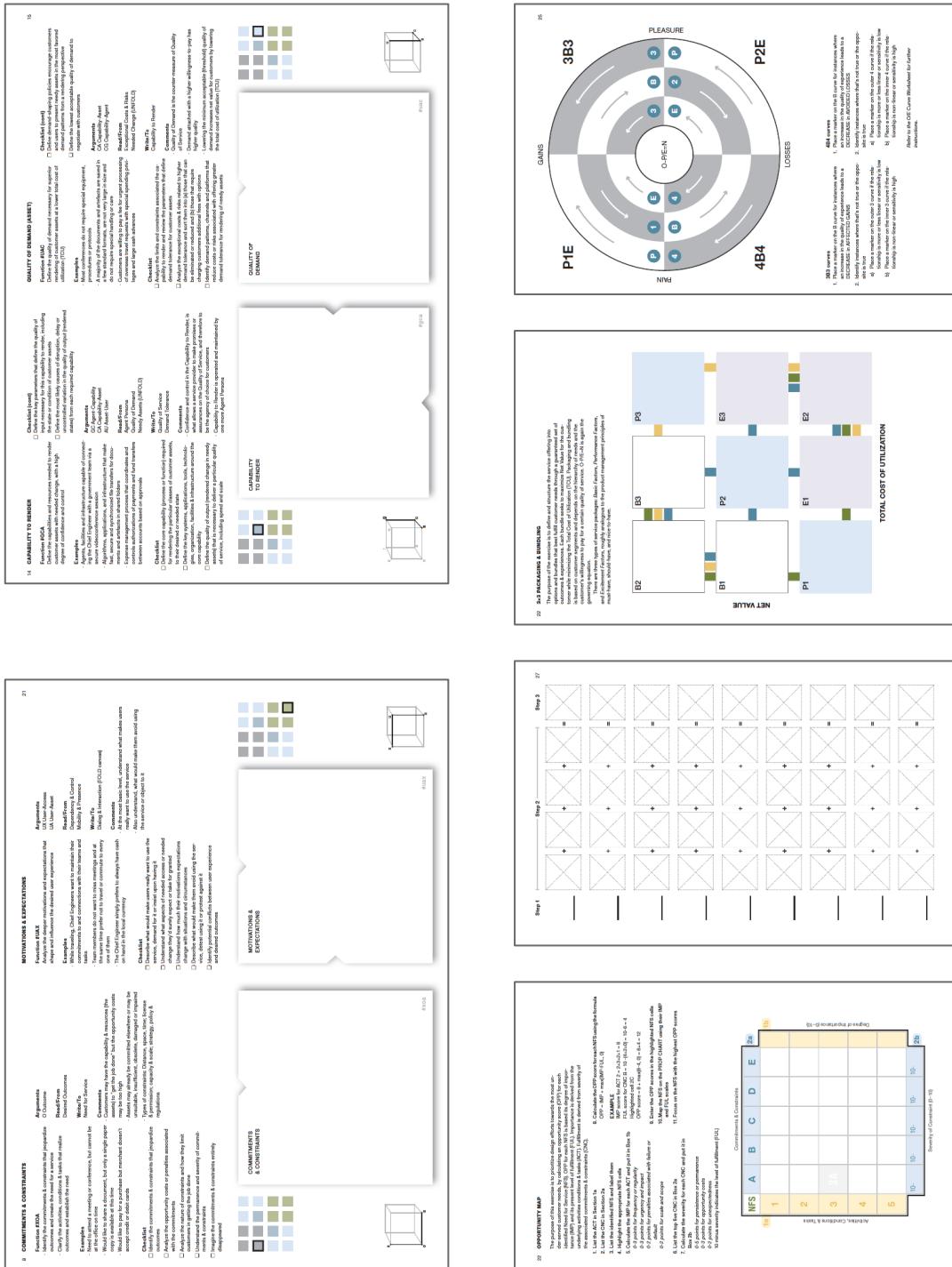


EXHIBIT 5A

Snapshots of a service design package

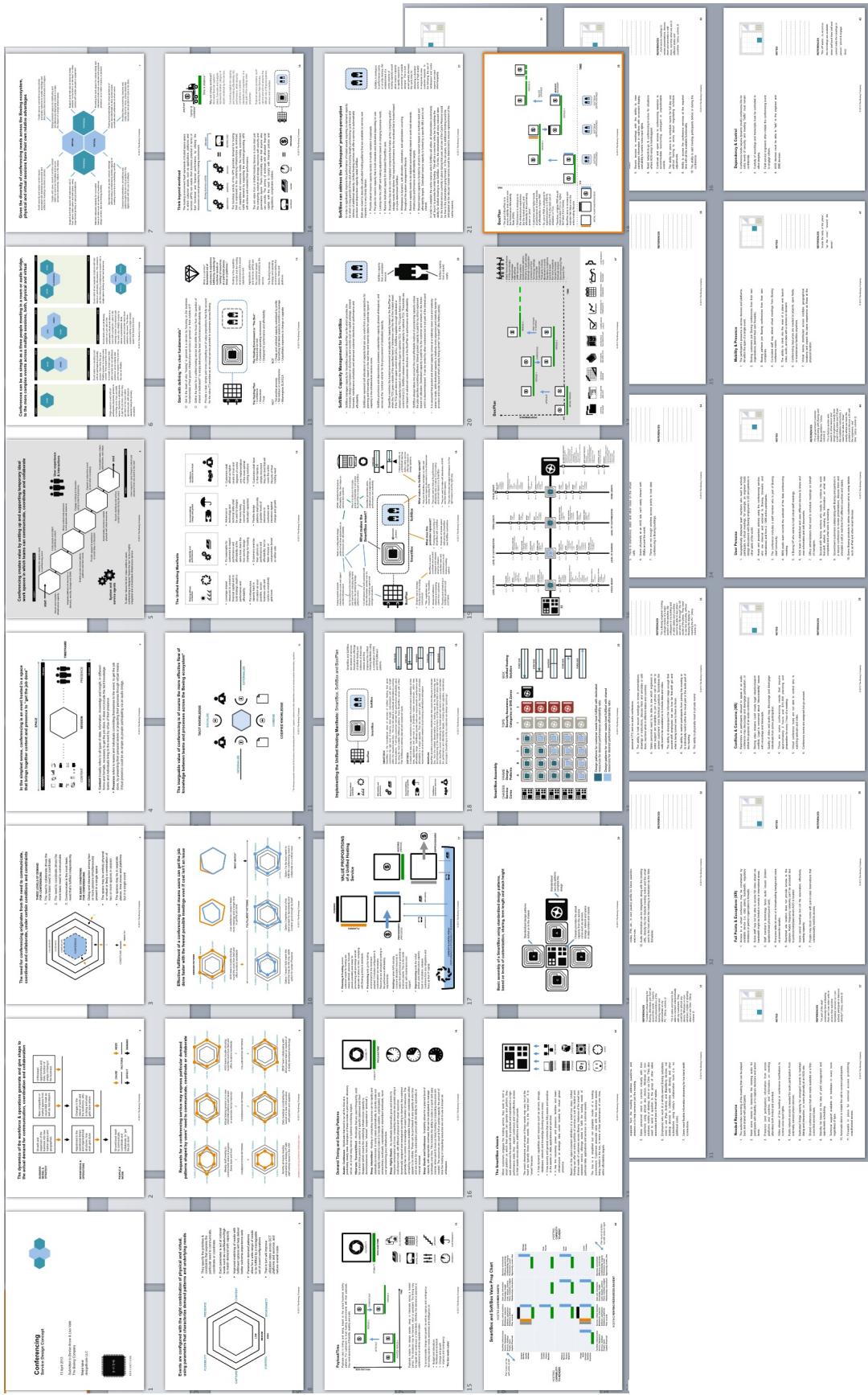
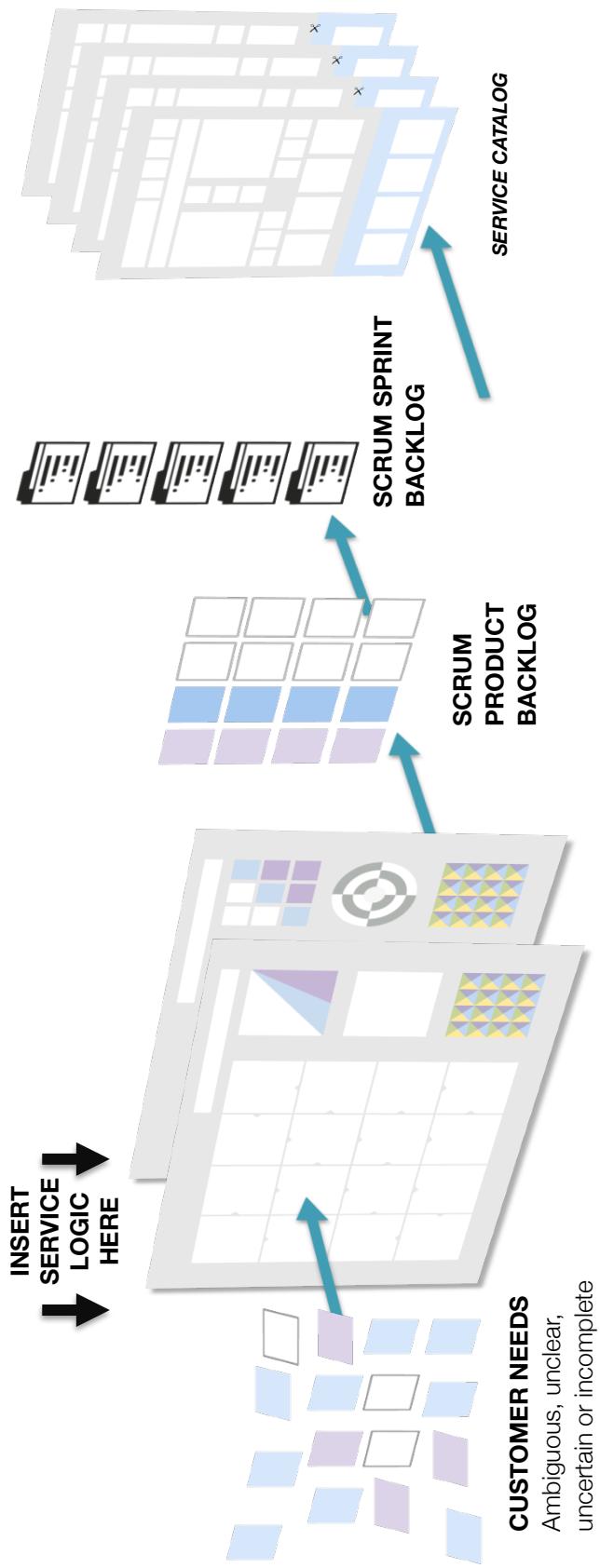


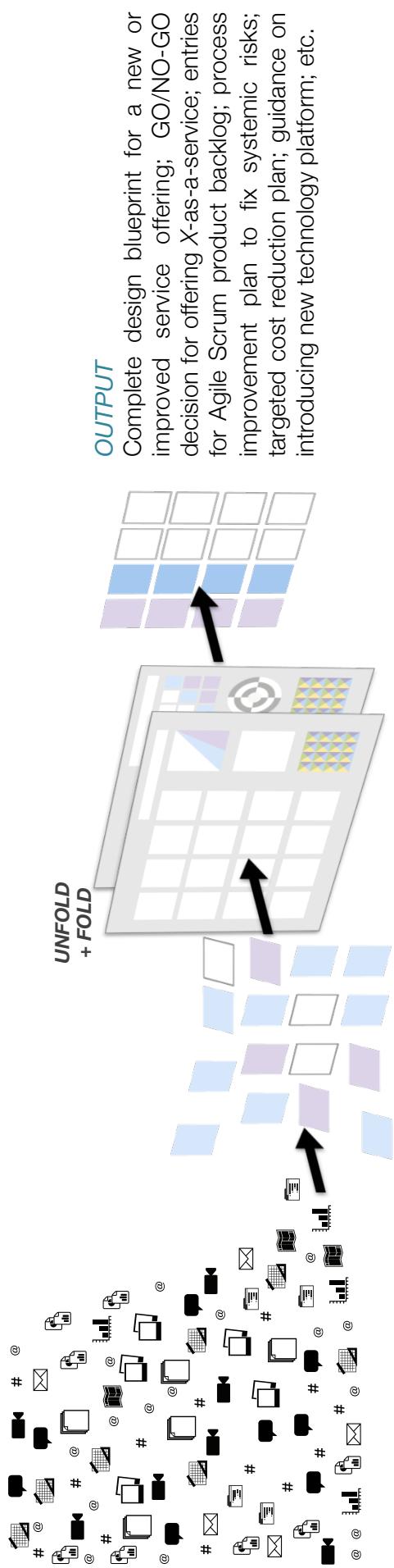
EXHIBIT 5B

Source code for the Agile service enterprise

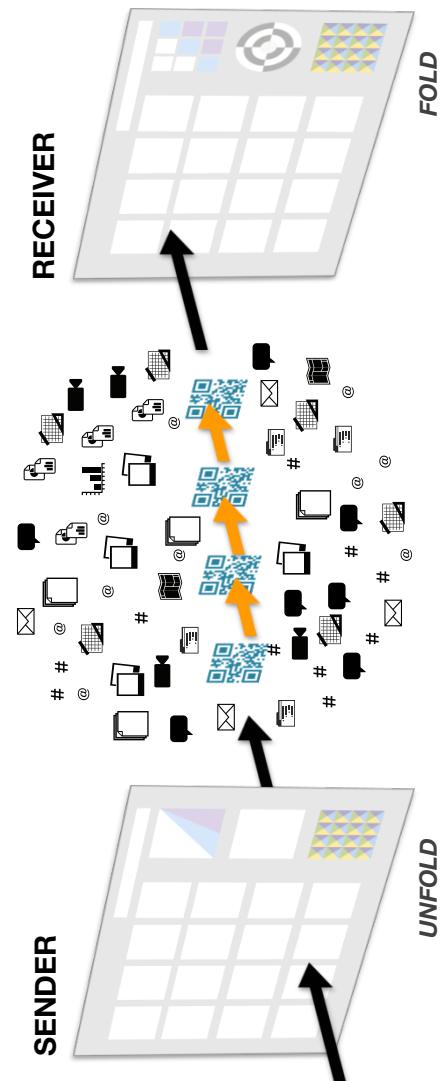
design#code is like source code for the service enterprise, to coordinate, communicate & control activities and teams across the organizational layers and technology stacks. But it is not actually software. Like DNA, it is mutable, allowing services to adapt and evolve into superior value propositions for customers. But it not actually DNA.



A single artifact contains the entire instruction set or DNA of the service and encodes the business model and strategy. design#code canvases are unique in the way they not only help teams develop breakthrough design, but also how they buffer and filter changing customer needs, and communicate them to groups and teams. For example, software teams would be working off the same *design code* as data center specialists to calibrate the performance of applications; technical support teams know what incidents and problems to expect; information architects and UX designers will design interactions that harmonize experiences with outcomes; and third-party services integrate seamlessly into the solution, all because everybody's literally on the same page.



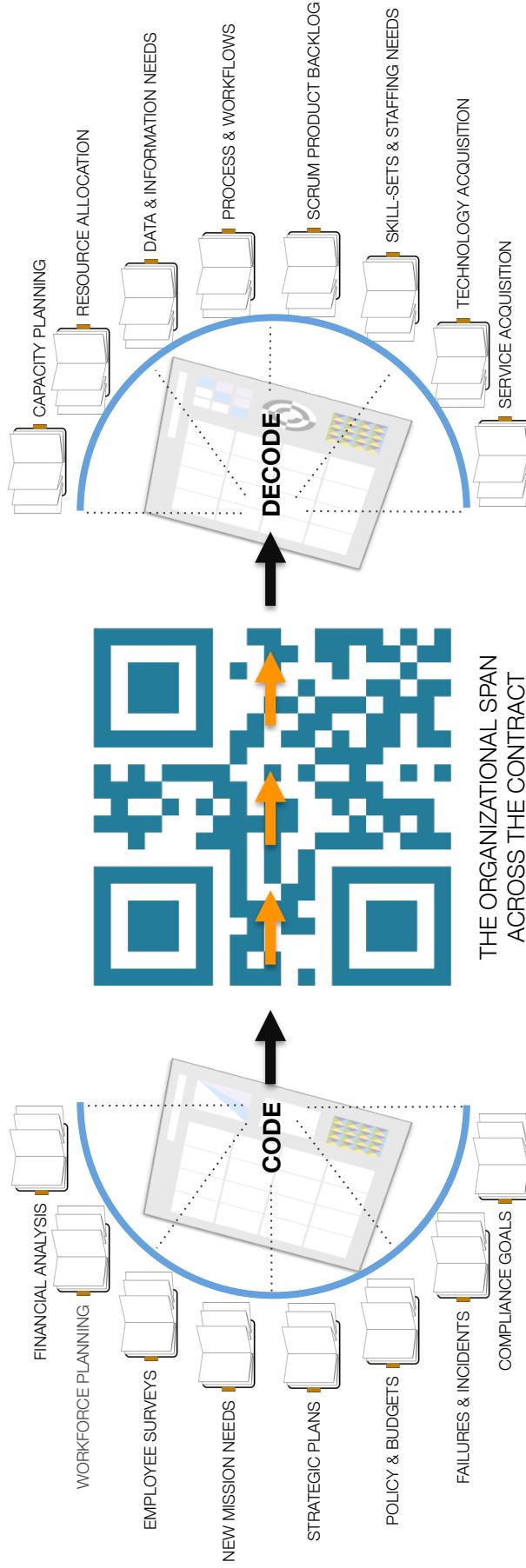
TWO WAYS THE DESIGN CANVASES REDUCE DEVELOPMENT COSTS & RISKS



FAST & RELIABLE COMMUNICATION

Design needs to be coordinated and communicated across several layers of an organization or its value network; across functions & disciplines, each with their own models, mindsets, languages and biases. To get through this organizational complexity and “noise” the canvases encode the design to travel across as packets of information addressed to one or more receiving canvases. Each packet can take a different path through the organization and arrive out of sequence at the other ends. They’re reassembled on by the receiver canvas using the design#code service logic i.e. album metadata

REDUCING COSTS & RISKS IN SERVICE CONTRACTS, FOR BOTH SIDES



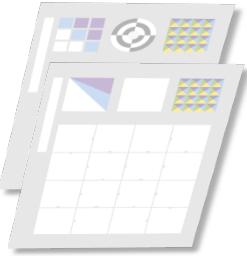
HOW MULTIPLEXING SAVES TIME AND MONEY

When services fail to meet expectations, both sides lose. It's in the best interests of customers and service providers to reduce risks by richly encoding into the design the knowledge & insight from multiple sources and communicating it to multiple recipients, while at the same time maintaining the *big picture integrity* of the service design. The design#code service logic is used to *multiplex* design input from many different teams, processes, documents & artifacts from the customer side, and communicate it through the acquisition process to be reproduced in the corresponding solution context on the service provider side. It's like Dolby Digital® encoding for surround sound.

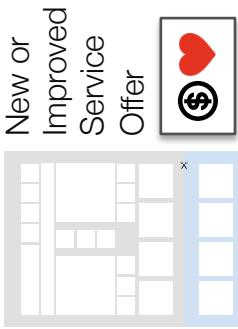
With rich and complete design blueprints, service providers can significantly reduce costs and risks associated with the transition of the service from the client organization or an incumbent service provider. This also reduces the overall size of safety margins and management overhead built into contracts to cover the perceived *moral hazard*. Prime contractors get all their subcontractors on the same page.

* One of the principal calls for action issued by the DOD in the 2010 memo titled "Better Buying Power"

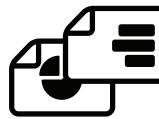
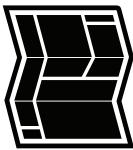
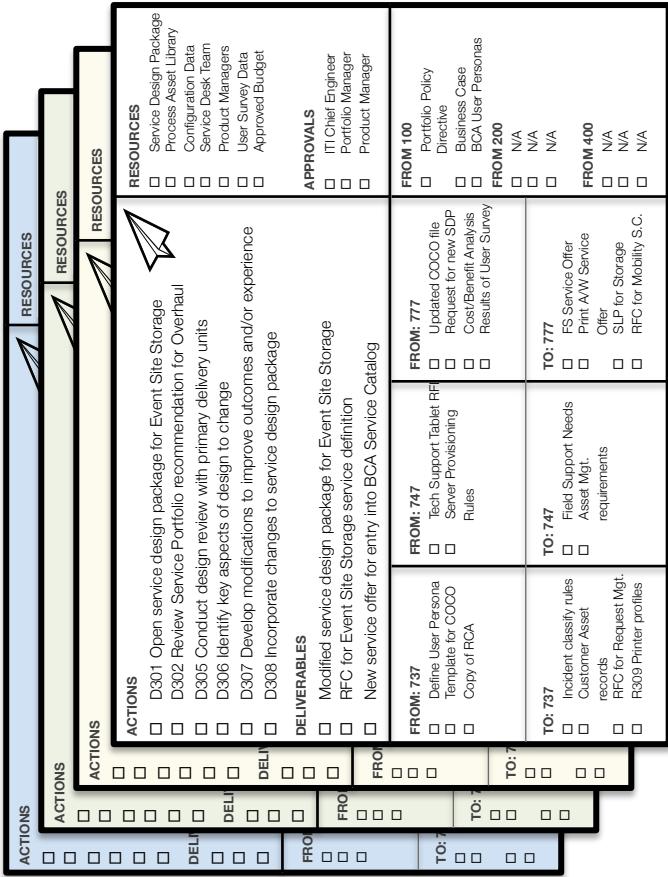
EXHIBIT 5C



D300 Overhaul the Event Site Storage Service



D300 Game Plan



TEAM 737



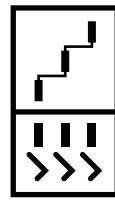
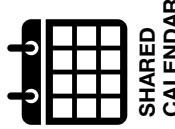
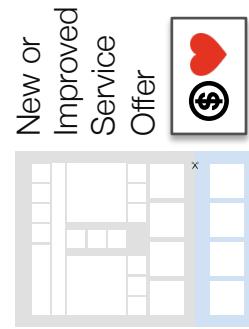
TEAM 747



TEAM 777



TEAM 787



**INTER-LINKED
CHECKLISTS**

EXHIBIT 5D

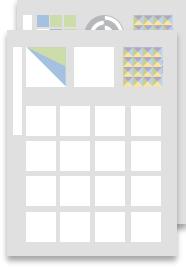
The Design Portfolio, Policy & Strategy

When a collection of service design packages covers an entire line of business (or government mission), design becomes a capital asset that is leveraged across a well-defined portfolio of technology services.

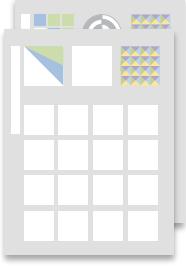
SCREENING



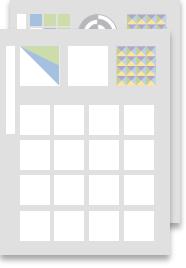
PERSONS



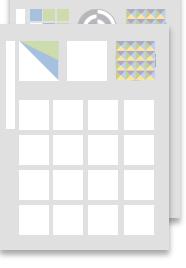
EMPLOYEES



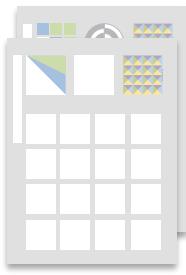
TSA CHECKPOINT



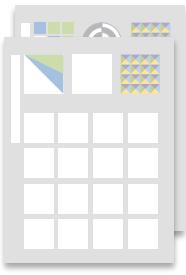
DOCUMENT



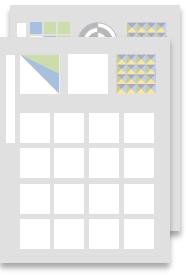
PROPERTY



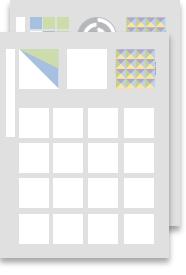
PASSENGERS



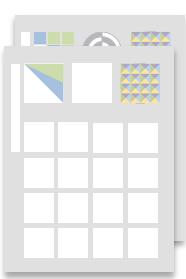
GLOBAL ENTRY



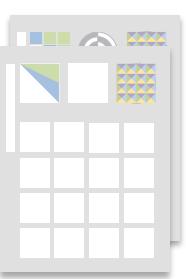
BODY



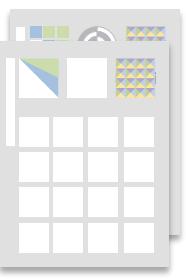
BAGGAGE



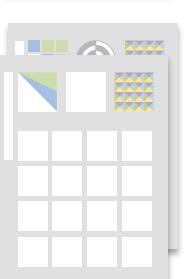
TSA PRE CHECK



FINGERPRINT



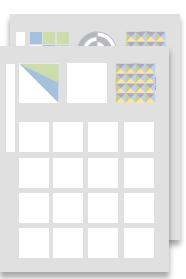
CARGO



TSA TWIC



PASSPORT



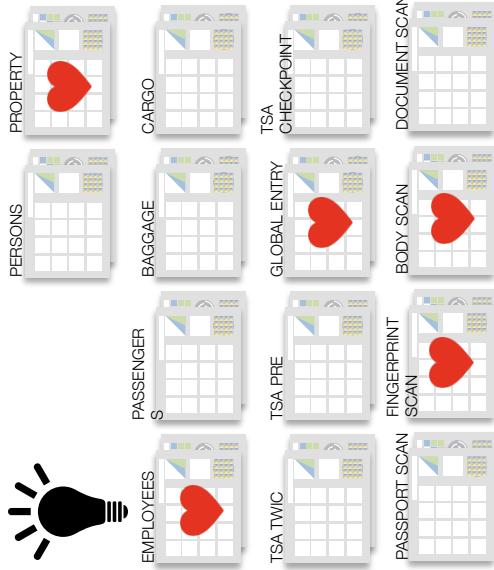
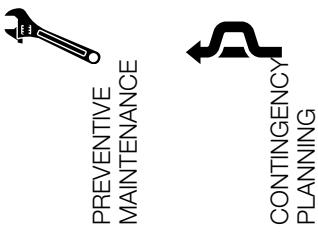
Policy & Strategy to govern the design and development of services to support the Screening mission of the Department of Homeland Security across USA

Service Catalog offering customers & users across DHS or a particular agency a set choices & options in using services to deliver the Screening mission

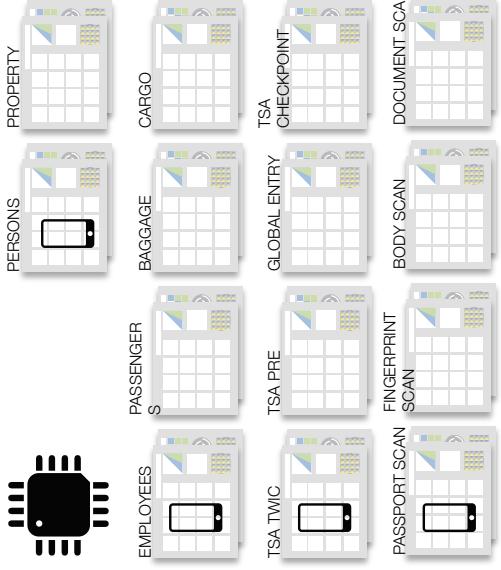
Design DNA that's shared by an entire portfolio of services, including those in the design, development & testing phases, as well as those to be replaced or retired.

EXHIBIT 5E

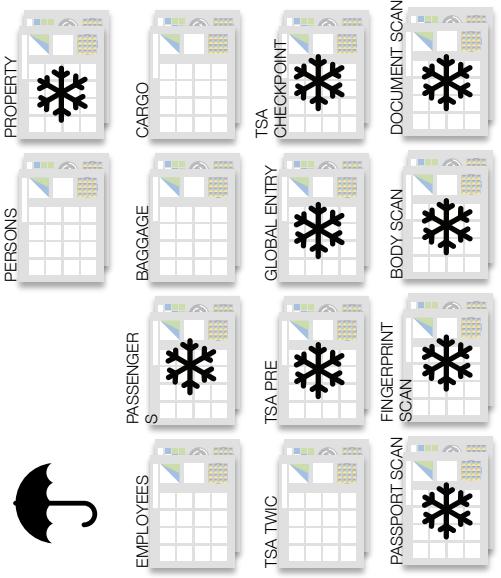
Why design portfolios are valuable investments



New ideas propagate fast

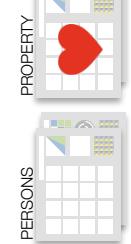


Failures in one service predicted in others



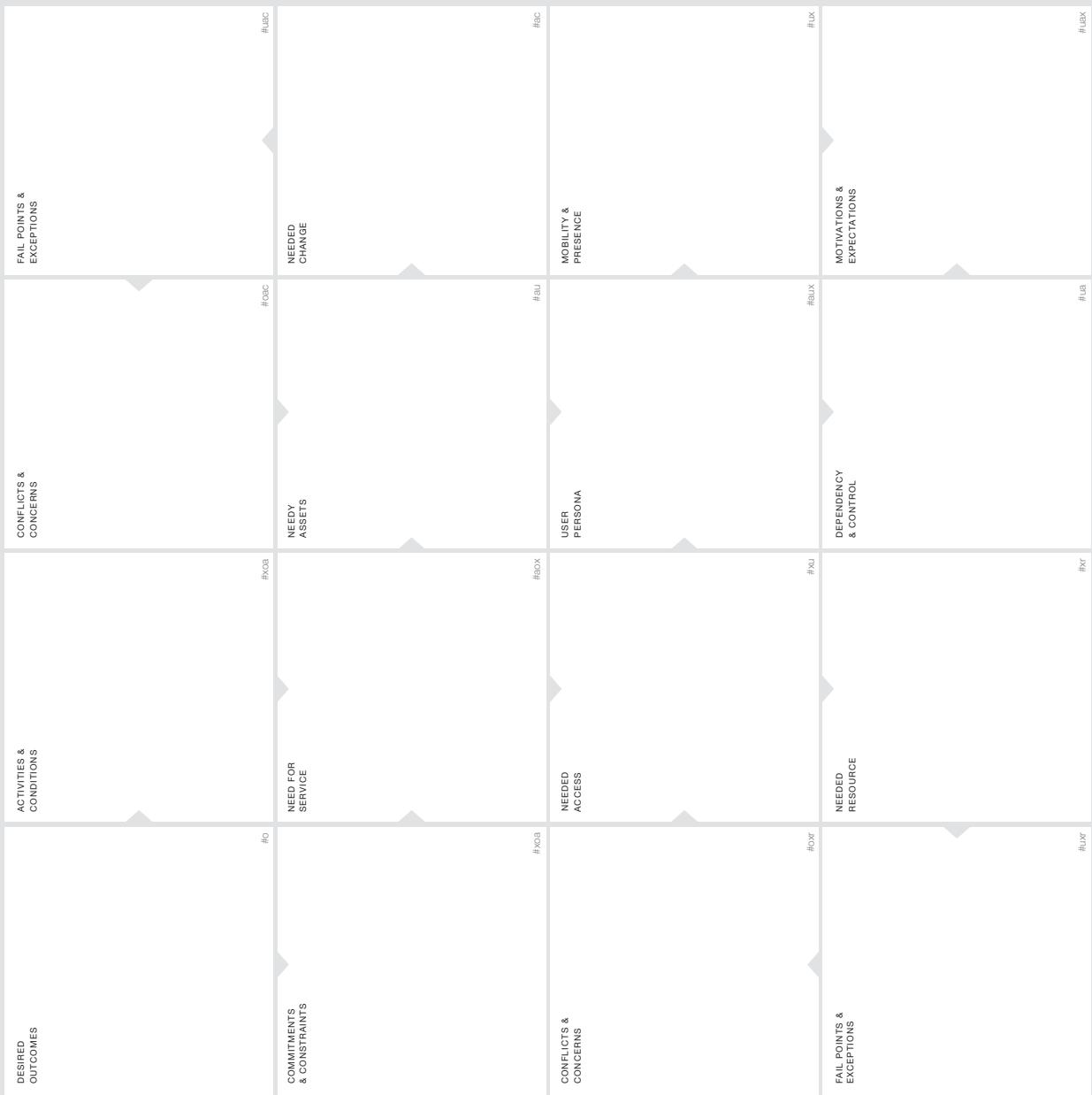
Better business cases for technologies

Identifying economies of scale & scope



NOTES

1. Ownership means having claims over the economic and social value of the assets, even from temporary custody or possession of those assets. For example, when you lease a car or a facility, you effectively “own” the asset even though really don’t do it for strictly accounting purpose. Also, when people are the assets, such as employees or patients, you don’t really own them in any sense, but you do have the benefits or privileges of having them under your custody, control or care.
2. Render and Rent are like reserved words in programming languages, with a special meaning that should be interpreted the same in all languages, without substitution with translated words. Render and rent are both verbs that signify action by the service provider on behalf of, and for the benefit of, the customer.
3. Renting is not just in the most commonly understood sense such as renting cars, facilities or storage space, but also having access to knowledge, insight and expertise through capable, certified and trusted professionals; financial credit at a point-of-sale terminal; having the license or permission to use copyrighted materials; and, in a more unconventional sense, simply having access to highly intangible assets such as authorization, confidence and trust at a particular place and time.
4. Transaction Cost Economics (Nobel Prize, 2009) help explain why we chose to own assets and chose to perform tasks ourselves versus renting assets and having others perform the tasks. Prospect Theory (Nobel Prize, 2002) helps understand how people and organizations are motivated by the prospects of losses and gains.
5. In the design#code generalized model for defining services, outcomes (O) are used as the proxy for customers. This is because (a) it is outcomes, and the associated activities, conditions and tasks, that frame the need for the rendering of customer assets (CA) and the need for access to resources(XR); and (b) more than one customer may subscribe to the same outcome e.g. the need to pay invoices on time.
6. In consumer services, customer and users are assumed the same persona i.e. those who are paying for the service, are also using it (O=A). Also, users may themselves be the needy asset or the customer asset being rendered (U=A). In either case, the service agreement (OE) is always between the agency and the customer persona.
7. The patient is the asset even though they’re not really “owned” by the hospital or the surgery department. This makes sense from, both, a social and economic perspective. The welfare and wellness of patient is the purpose for which the healthcare system exists; around which value is created; and based on which economic rents are payable.

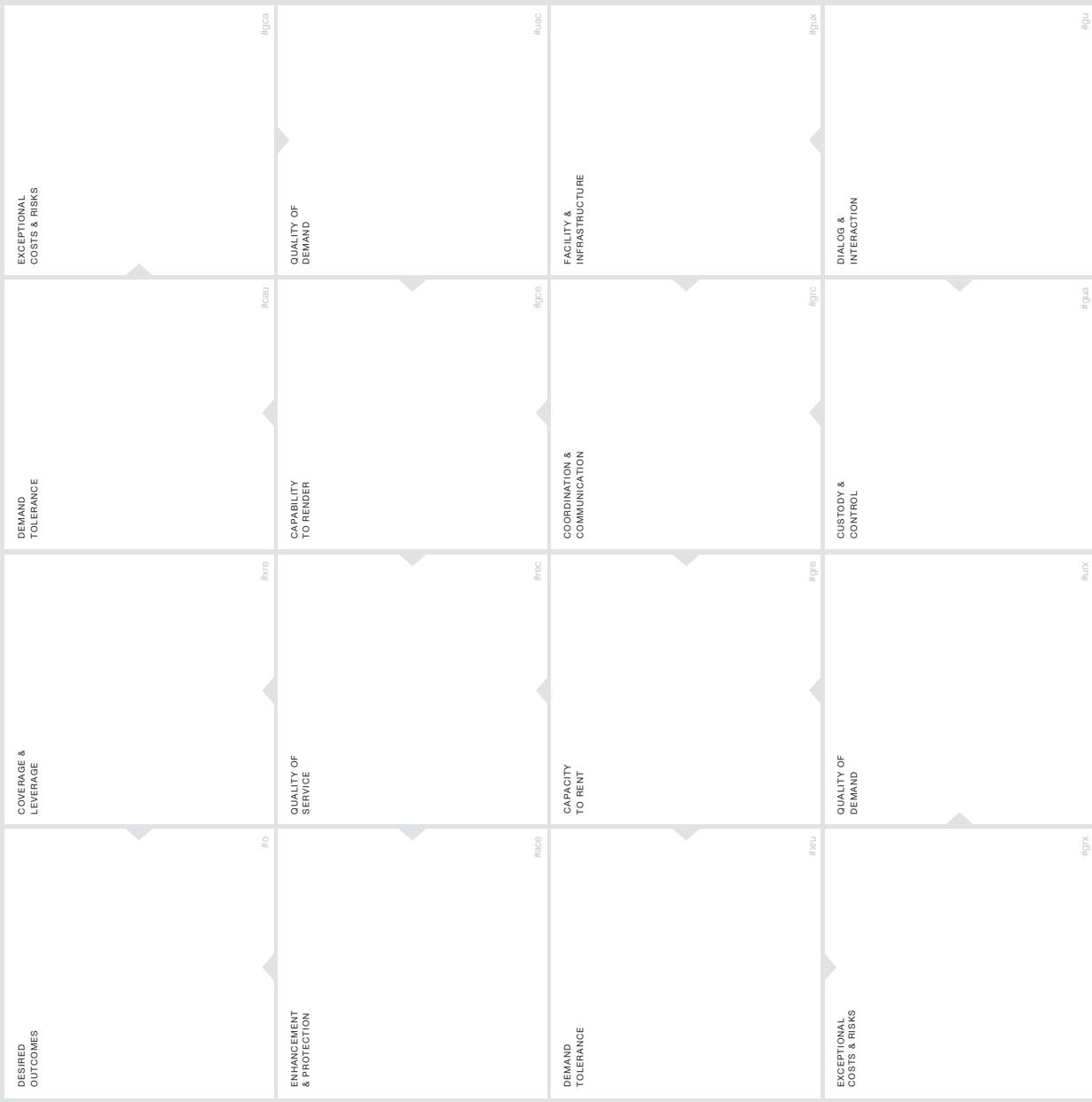


UNFOLD CANVAS

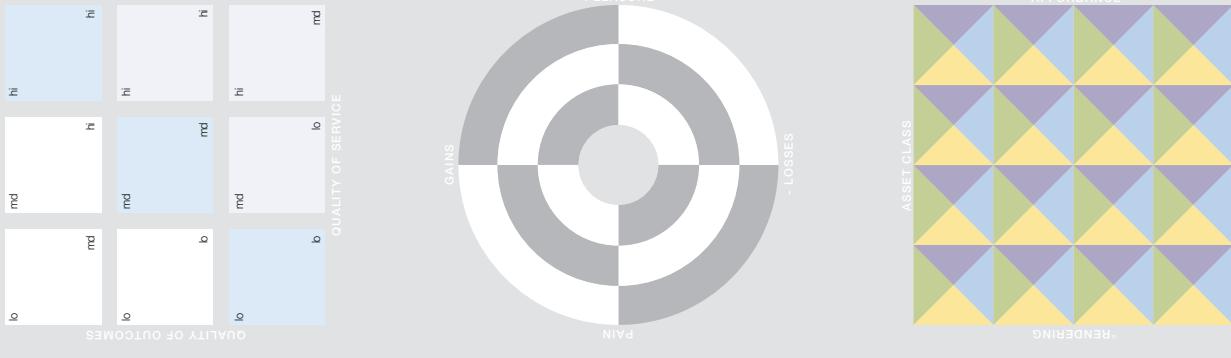


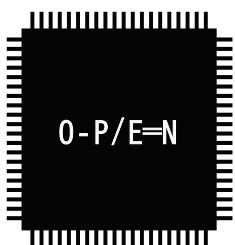
SERVICE PRODUCT

DCN	ORGANIZATION	MARKET SPACE	DATE
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FOLD CANVAS





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