LEATHERMAN®

FINAL PRESENTATION
LEATHERMAN ARC MULTI-TOOL

Collaborative Product Design - Fall 2023

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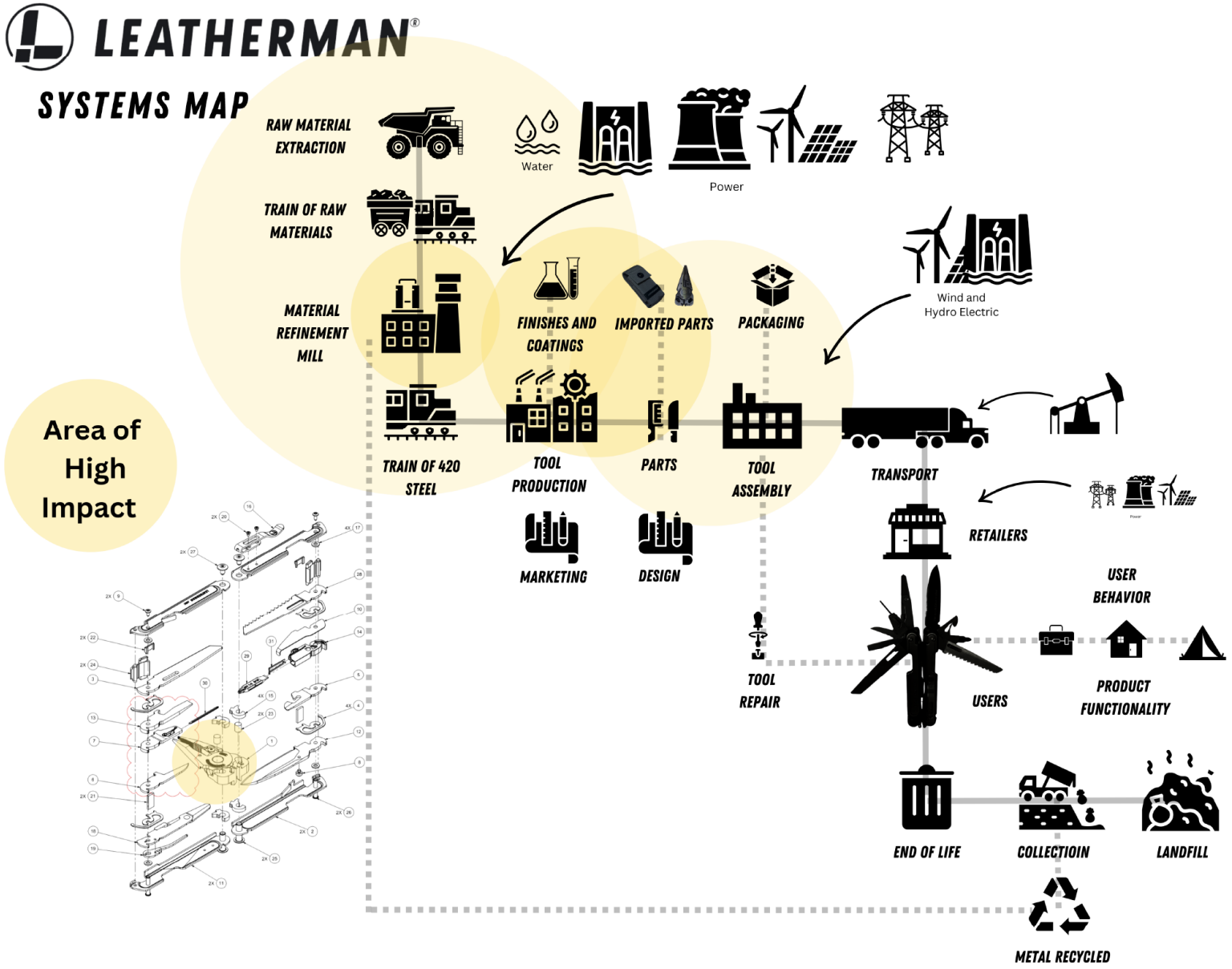
LEATHERMAN ARC

TOOLS INCLUDED

1. MagnaCut Knife Blade
2. Needlenose Pliers
3. Regular Pliers
4. Large Bit Driver
5. Diamond-coated File
6. Small Bit Driver
7. Wood/Metal File
8. Pry Tool
9. Premium Replaceable Wire Cutters
10. Premium Replaceable Hard-wire Cutters
11. Impact Surface
12. Large Screwdriver
13. Bottle Opener
14. Can Opener
15. Awl
16. Spring-action Scissors
17. Saw
18. Wire Stripper
19. Electrical Crimper
20. Edge File

SYSTEM MAP


LEATHERMAN
SYSTEMS MAP
RAW MATERIAL EXTRACTION
Water
Power
TRAIN OF RAW MATERIALS
MATERIAL REFINEMENT MILL
FINISHES AND COATINGS
IMPORTED PARTS
PACKAGING
Wind and Hydro Electric
Area of High Impact
TRAIN OF 420 STEEL
TOOL PRODUCTION
PARTS
TOOL ASSEMBLY
TRANSPORT
MARKETING
DESIGN
RETAILERS
USER BEHAVIOR
TOOL REPAIR
USERS
PRODUCT FUNCTIONALITY
END OF LIFE
COLLECTIOIN
LANDFILL
METAL RECYCLED

DESIGN BRIEF

BOUNDARIES

INCLUDE: tool, sheath, sourcing, transportation, manufacturing processes, user behavior (repair and disposal, corporate engagement)

EXCLUDE: packaging, facility/utilities

FUNCTIONAL UNIT

Lifetime of the product (25 years)

METRICS FOR SUCCESS

- Reduce carcinogens by **30%**
- Maintain projected working lifespan of **25 years**
- Reduce overall CO_2 eq. kg/func. unit by **25%**
- Maintain **majority** customer approval of functionality, desirability, and attractiveness
- Maintain a **40%** profit margin (while keeping market prices in mind)
- Improve LCA Impact Score by **50%**

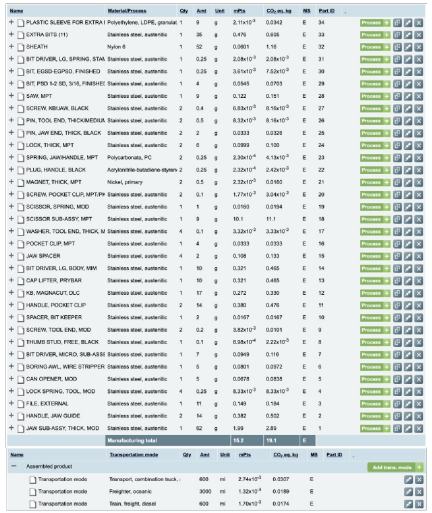
LIFE CYCLE ASSESSMENTS

LEATHERMAN®

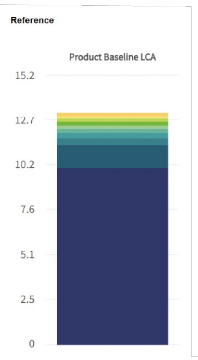
LIFE CYCLE ASSESSMENTS

mPts	15	15	15	15
CO_2 eq. kg	19	18	19	19

OBJECTIVE	WEIGHT	BASELINE	SHEATH	COATINGS	TRANSPORTATION
Reduce carcinogenics	4	3 (x4)	3 (x4)	3 (x4)	2 (x4)
Must last for 25 years • Must be durable • Must be corrosion resistant • Must hold an edge very well	4	3 (x4)	2.5 (x4)	3 (x4)	3 (x4)
Reduce overall CO_2 eq. kg/functional unit	3	3 (x3)	3 (x3)	3 (x3)	2 (x3)
Maintain 40% profit margin • Must cover all overhead, remain debt free, and have the ability to fund all of their own projects • Pricing structure = Cost + Margin	2	3 (x2)	4 (x2)	5 (x2)	2 (x2)
Must be functional, desirable, attractive	2	3 (x2)	3 (x2)	2 (x2)	3 (x2)
LCA improvement	1	3 (x1)	3 (x1)	3 (x1)	1 (x1)
	TOTALS	48	48	50	37



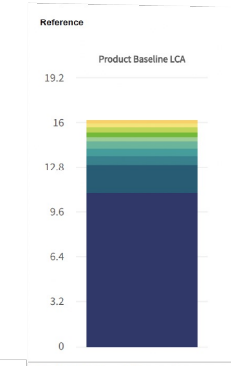
Impacts by SBOM inputs: Total [mPts/func unit]



Total = 15mPts/func unit

Input	mPts/func unit
Process - Stainless steel, austenitic: Metal working, stainless steel product manufacturing	10.0
Process - Stainless steel, austenitic: Casting, stainless steel, lost-wax	1.30
Material - Stainless steel, austenitic	0.364
Process - Stainless steel, austenitic: Drilling, CNC, chromium steel	0.325
Process - Stainless steel, austenitic: Casting, stainless steel, lost-wax	0.210
Process - Stainless steel, austenitic: Casting, stainless steel, lost-wax	0.210
Material - Stainless steel, austenitic	0.206
Process - Stainless steel, austenitic: Drilling, CNC, chromium steel	0.163
Material - Stainless steel, austenitic	0.164
Material - Stainless steel, austenitic	0.164

Impacts by SBOM inputs: Total [CO2 eq. kg/func unit]



Total = 19 CO2 eq. kg/func unit

Input	CO2 eq. kg/func unit
Process - Stainless steel, austenitic: Metal working, stainless steel product manufacturing	11.0
Process - Stainless steel, austenitic: Casting, stainless steel, lost-wax	2.02
Process - Nylon 6: Weaving, cotton	0.679
Process - Stainless steel, austenitic: Drilling, CNC, chromium steel	0.522
Material - Nylon 6	0.479
Material - Stainless steel, austenitic	0.339
Process - Stainless steel, austenitic: Casting, stainless steel, lost-wax	0.326
Process - Stainless steel, austenitic: Casting, stainless steel, lost-wax	0.326
Process - Stainless steel, austenitic: Drilling, CNC, chromium steel	0.294
Process - Stainless steel, austenitic: Drilling, CNC, chromium steel	0.236

LCA TAKEAWAYS

- TOO EXPENSIVE
- TOO EASY
- TOO INEFFECTIVE

LCA TAKEAWAYS

PRIORITY	OBJECTIVE	METRIC(S)
1	Must be durable, corrosion resistant, and hold an edge	• Must last for at least 25 years
2	Must be functional, desirable, and attractive	• 85% customer satisfaction of the tool in all categories • Can maintain 40% profit margin without pricing the unit out of scope
3	Encourage sustainable behavior change	• Increase number of tools sold that are sent in for repair by 5% • Survey responses report 99% of users have used their Leatherman Arc to repair another consumer good
4	Market sustainability in an inclusive way	• 95% of consumers approve of communication and execution of the initiative
5	LCA improvement	• LCA improvement of > +25%

Sheath: Alternative Materials Resource Table

MATERIAL	LINK(S)	PROS	CONS	CONTACT (if applicable)	PHOTO(S)
Cork Leather	https://mbcork.com/en-us	• Renewable material - doesn't damage the tree • Flexible and soft • Color options • Produces no waste in extraction, processing, or production • Completely recyclable; can be ground and made into new material	• Grows primarily in Portugal • Not as sturdy as animal hide leather	Email: cs.mbcork@gmail.com (Portugal)	
Mylo	https://mylo-unleather.com/	• Brought to market with Adidas, Lululemon • Grows in weeks (rather than years) • Is compostable • Naturally absorbant, antibacterial and antimicrobial	• Not biodegradable • Plastics still included in final product • Chemicals involved in manufacturing process	https://mylo-unleather.com/contact/	
Vegea	https://alternativeleathers.com/pages/grape-leather https://www.vegeacompany.com/	• Renewable material souce (Vegea sources grape skins, seeds, and stalks from wineries across Italy. These are the leftovers from their winemaking process.) • Brought to market with Calvin Klein, Diadora, Bentley	• Not biodegradable • Plastics still included in final product • Chemicals involved in manufacturing process	https://alternativeleathers.com/pages/contact	
Desserto	https://alternativeleathers.com/pages/cactus-leather https://desserto.com.mx/home https://eikenshop.com/en-us/blogs/leather-guide/cactus-leather#H6	• Renewable material souce (The Nopal cacti are grown using rainwater and no artificial fertilizers.) • Brought to market with Adidas, Fossil, Mercedes Benz • Smooth and soft • Abundant in Mexico • Partially biodegradable • Needs very little water to grow	• Not as flexible as animal leather • Partially biodegradable • Only lasts about 10 years • Expensive (targeted to wealty minority)	https://alternativeleathers.com/pages/contact	
Piñatex	https://alternativeleathers.com/pages/pinatex https://www.panaprium.com/blogs/i/pinatex-pineapple-leather https://www.ananas-anam.com/	• Renewable material source (After pineapple harvest, the plant leaves that are left behind are collected in bundles and the long fibres are extracted using semi-automatic machines.) • Brought to market with Hugo Boss, Nike, H&M and more • Uses waste from pineapple farming industry • 30% cheaper than animal leather • Lightweight and durable	• Unlike animal hide leather, pinatex is not biodegradable • Low heat resistance • Low elasticity • Low abrasion resistance • Can dry out over time (doesn't last as long as animal leather)	https://alternativeleathers.com/pages/contact	

IDEA DEVELOPMENT

LEATHERMAN®

CIRCULARITY

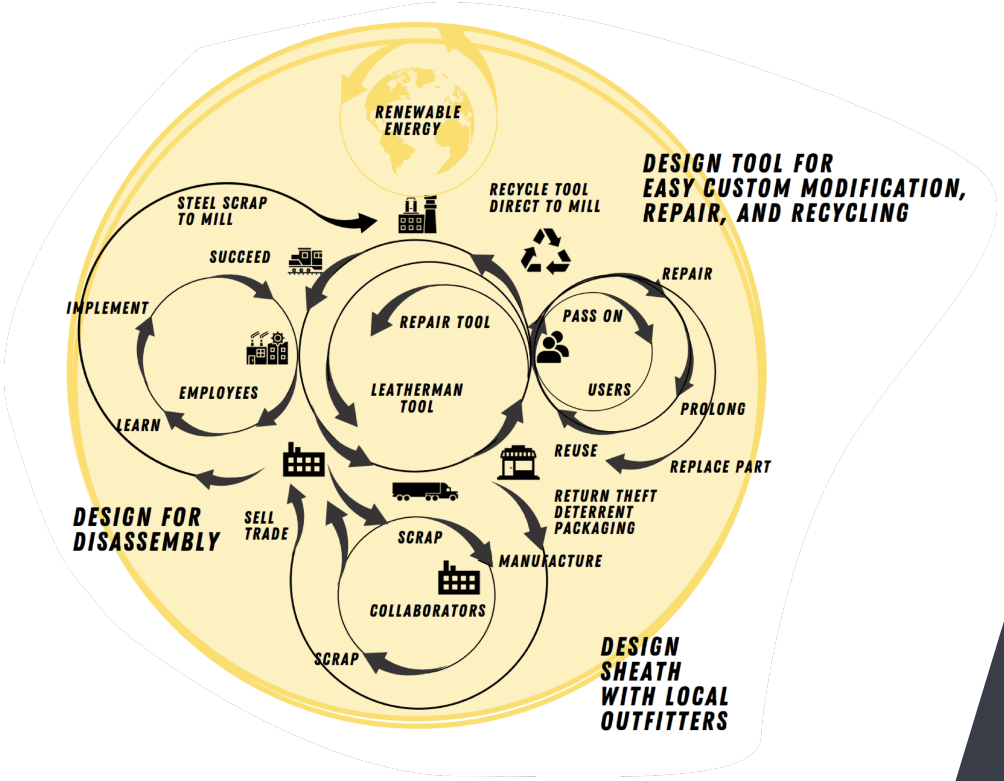


Photo Credit: Portland Records

THE ADAPTIVE STRATEGY

STEP 1: Observe and Interpret the System

STEP 2: Envision Circular Futures

STEP 3: Create the Conditions for Collaboration

STEP 4: Build Circular Design Capabilities

STEP 5: Rewrite the Rules

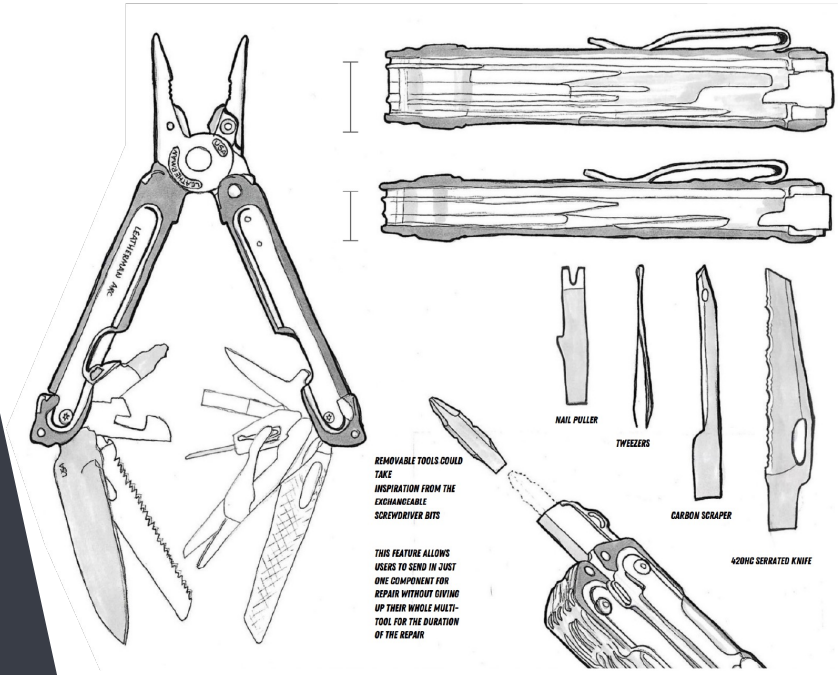
STEP 6: Develop Tools to Design and Evaluate

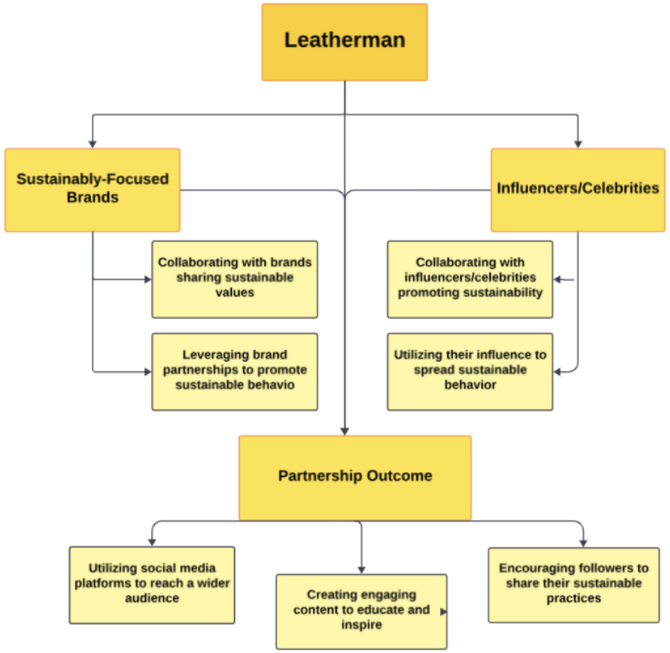
PERSUASIVE DESIGN

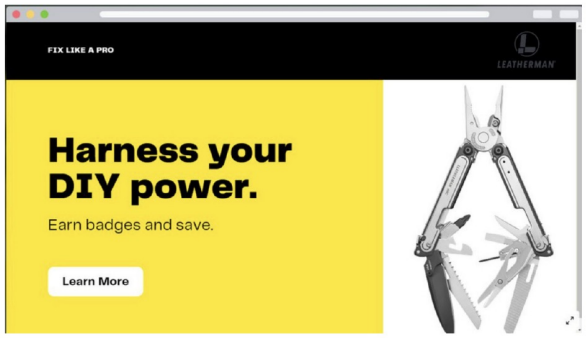
1. CHANGE BEHAVIOR

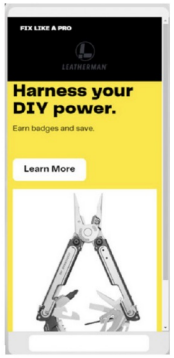
2. INCREASE ABILITY

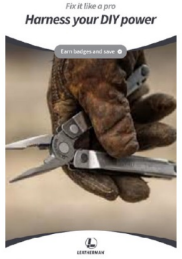
3. INCREASE MOTIVATION











MARKETING & COMMUNICATIONS

- GOALS
- PRODUCT
- OBJECTIVE
- MISSION
- VISION
- DIFFERENTIATORS
- AUDIENCE
- PSYCHOGRAPHICS
- VISIBILITY
- MOTIVATIONS
- POSITIONING
- PLATFORM
- UNSDG GOALS

SUGGESTIVE SUSTAINABILITY

1. CONTEXTUAL STORYTELLING
2. ENVIRONMENTAL INTEGRATION
3. REPAIR & MAINT. SCENES
4. SUSTAINABLE MATERIALS
5. COLLABORATIVE IMAGERY
6. ENERGY-EFFICIENT ENVIRONMENTS
7. NATURAL LIGHT & ECO SETTINGS
8. EVERYDAY SUSTAINABILITY
9. GREEN SPACES & LANDSCAPES
10. SUBTLE ECO-FRIENDLY SYMBOLS

NARROWING DOWN

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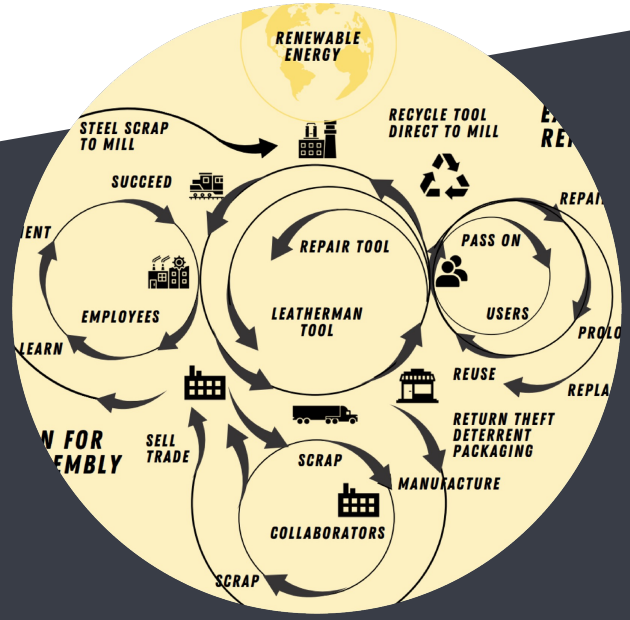
TOP 8 DESIGN CONCEPTS

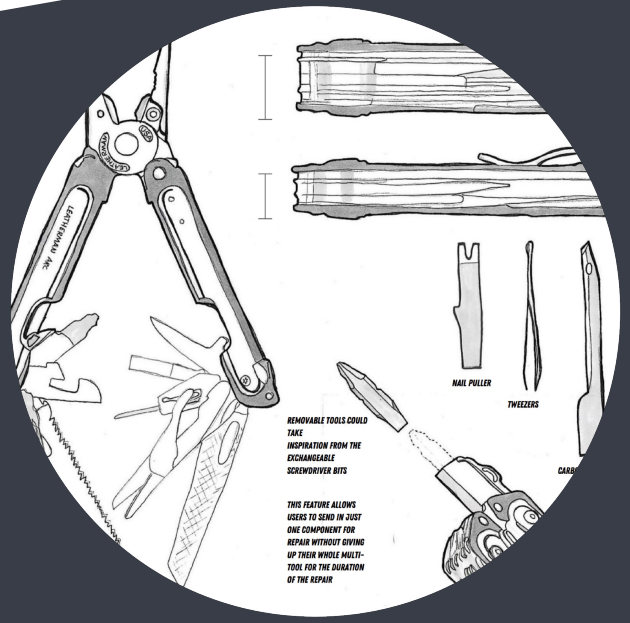
1. LESS MATERIALS – NO SHEATH
2. ETHICAL SOURCING
3. MODULAR DESIGN
4. FIX IT – REPAIRED BY LEATHERMAN
5. CIRCULARITY COMMITMENT
6. MATERIAL ALTERNATIVES FOR SHEATH
7. WOMEN/GENDER INCLUSIVITY
8. SUGGESTIVE SUSTAINABILITY

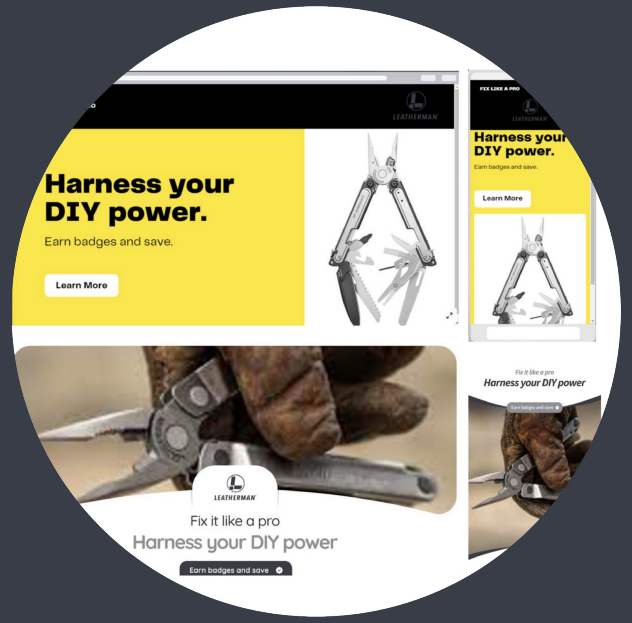
DECISION MATRIX

DECISION MATRIX				1	2	3	4	5	6	7	8
			WEIGHT	Less Materials - No Sheath	Ethical Sourcing	Material Alternatives - Sheath	Circular Design Commitment	Modular Design	Fix-It Campaign	Gender Inclusivity	Suggestive Sustainability
	Objectives / Metrics ***1- Significant negative impact / 2 - Some negative impact / 3 - No change from current product / 4 - Some positive improvement / 5 - Significant positive improvement***										
	Must last for 25 years > Must be durable, corrosion resistant, and hold an edge	Would the concept last for at least 25 years?	4	2.5 (x4) (less protection without sheath)	3 (x4)	3 (x4)	4.5 (x4)	4 (x4)	3 (x4)	3 (x4)	3 (x4)
	Must be functional, desirable and attractive	Would the concept detract from an 85% satisfaction rate of the product? Would the concept impact profit margins?	2	3 (x2)	3 (x2)	4 (x2)	4 (x2)	4.5 (x2)	3.5 (x2)	3.5 (x2)	3.5 (x2)
	Encourage sustainable behavior change	Would the concept increase the number of tools repaired? Would the concept increase the likelihood of consumers using their tool to repair other goods?	5	2.5 (x5) (slightly less likely to carry it on you?)	3.5 (x5) does encourage... but not directly related to our 2 metrics. Maybe a higher price point for an ethically sourced tool would encourage users to repair vs. re-buy	3.5 (x5) does encourage... but not directly related to our 2 metrics. Maybe a higher price point for an ethically sourced tool would encourage users to repair vs. re-buy	4.5 (x5)	4.5 (x5)	5 (x5)	5 (x5)	5 (x5)
	Market sustainability in an inclusive way	Would the concept detract from a 95% satisfaction rate of the brand?	3	3.5 (x3)	4 (x3) > Made in USA > Made responsibly > Worker's health	4 (x3) > Made responsibly > Environmental / ecosystem health	4 (x3)	4 (x3)	5 (x3)	5 (x5)	5 (x5)
	LCA Improvement	Would the concept have an enhanced LCA score from the unit's baseline: 45	1	4 (x1)	4 (x1)	3.5 (x1)	4.5 (x1)	3.5 (x1)	3 (x1)	3 (x1)	3 (x1)
	TOTALS	BASELINE: 45		**43**	**51.5**	**53**	**65**	**63**	**62**	**62**	**62**

FINAL CONCEPTS







1. CIRCULARITY COMMITMENT

2. MODULAR DESIGN

3. EXTERNAL MARKETING CAMPAIGN

#1 – CIRCULARITY COMMITMENT

Circularity

Resources

Ellen MacArthur Foundation

- Methods → https://www.circulardesignguide.com/methods
- Circulytics → https://www.ellenmacarthurfoundation.org/resources/circulytics/resources
- Circular Business Design: A practical guide → https://www2.paconsulting.com/Sustainability-EMF-BDG-2020-download.html?_ga=2.239392259.1250902504.1611318585-978887778.1606939987

[Sample] Circular Design Commitment

This is intended to serve as an example of what a Circular Design Commitment might look like for the Leatherman Product Design Team. To be most effective, each principle could be accompanied by specific time-bound goals to drive progress and measure success.

Introduction

At Leatherman, we recognize the crucial role we play in shaping a sustainable future. As innovators and creators, our Product Design Team is at the forefront of this journey. Through this Circular Design Commitment, we aim to integrate circular economy principles into our daily design practices, ensuring our products contribute positively to both our customers' experiences and the environment.

Guiding Principles

1. Design for Durability: Commit to creating multi-tools that withstand the test of time, focusing on quality, robustness, and longevity. Prioritize materials and construction methods that enhance the product lifespan.
2. Modularity and Repairability: Embrace modularity in design, allowing users to easily replace components and repair their multi-tools. Design products with disassembly in mind, ensuring straightforward access to components for repair purposes.
3. Sustainable Material Selection: Prioritize the use of responsibly sourced and recycled materials in our designs. Investigate and adopt materials with lower environmental impact, considering their entire lifecycle, from extraction to end-of-life.
4. Closed-Loop Manufacturing: Strive for a closed-loop manufacturing process where waste is minimized, and materials are reused or recycled within our production systems. Work towards circular material flows to reduce our ecological footprint.
5. End-of-Life Responsibility: Develop strategies for the end-of-life phase of our products. Encourage users to return their multi-tools for responsible recycling. Explore take-back programs and initiatives to extend product life.

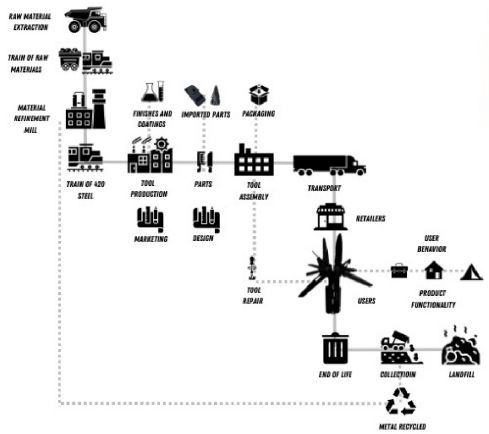
Operational Guidelines

1. Cross-Functional Collaboration: Foster collaboration with other departments, such as Marketing, Supply Chain, and Customer Support, to ensure a holistic approach to circular design. Promote knowledge sharing and cross-functional problem-solving.
2. Life Cycle Assessments (LCAs): Conduct comprehensive LCAs for our products, evaluating environmental impacts throughout their lifecycle. Utilize this data to inform design decisions and continuously improve our sustainability performance.
3. Consumer Education: Develop educational materials for customers, informing them about the repairability, recyclability, and sustainability features of our multi-tools. Empower users to make environmentally conscious choices.
4. Supplier Engagement: Collaborate with suppliers to ensure they align with our circular design commitment. Prioritize suppliers who share our values of sustainability, ethical practices, and innovation.
5. Continuous Improvement: Regularly review and update our circular design practices based on emerging technologies, materials, and best practices. Encourage a culture of continuous improvement and innovation within the Product Design Team.

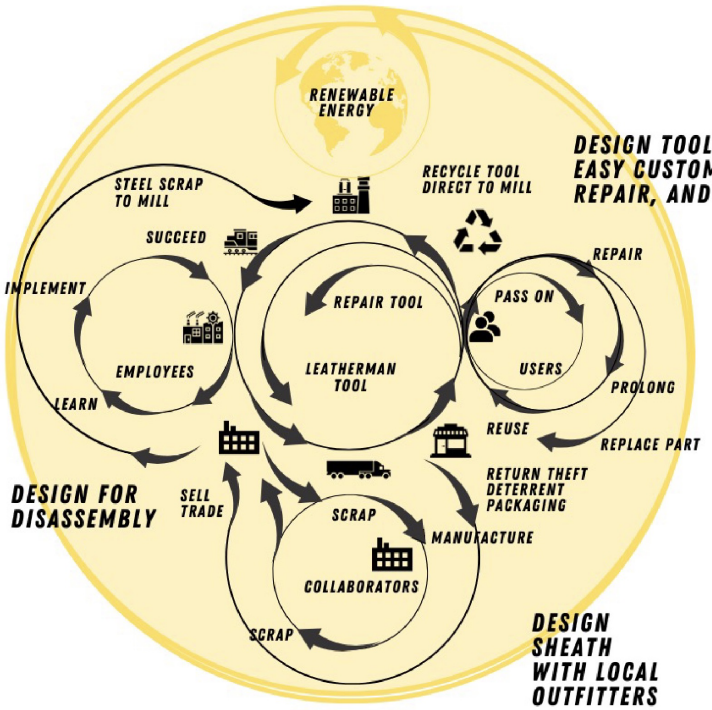
By adhering to these principles and guidelines, we, the Leatherman Product Design Team, pledge to lead the way in circular design excellence. Through our commitment, we seek not only to create exceptional multi-tools, but also to contribute positively to the planet and inspire a more sustainable future.

LEATHERMAN

CIRCULARITY COMMITMENT SYSTEMS MAP



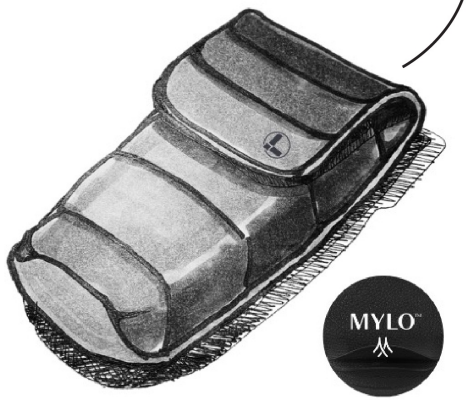
EXISTING SYSTEMS MAP



DESIGN FOR DISASSEMBLY

DESIGN TOOL FOR EASY CUSTOM MODIFICATION, REPAIR, AND RECYCLING

DESIGN SHEATH WITH LOCAL OUTFITTERS



COLLABORATIVE SHEATH DESIGN FROM SCRAPS

#2 – MODULAR TOOL

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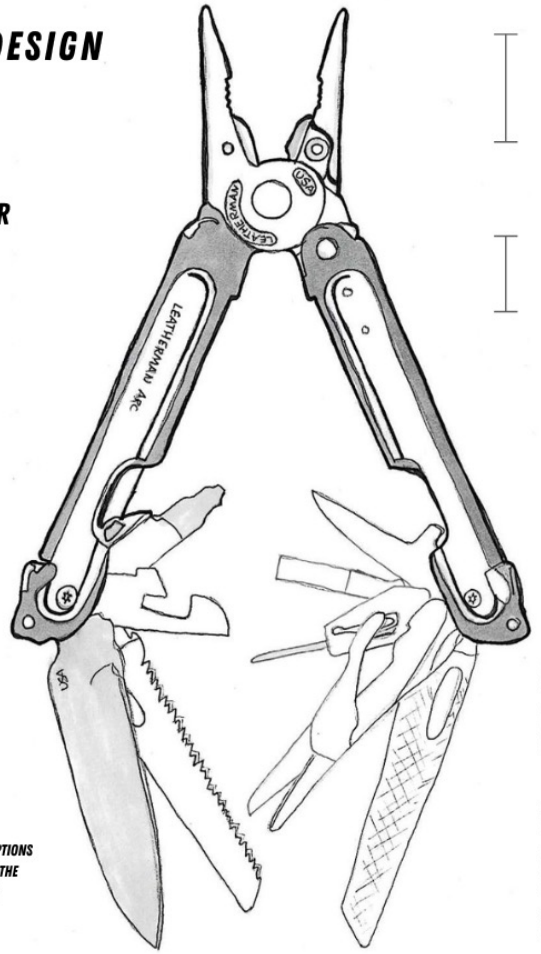
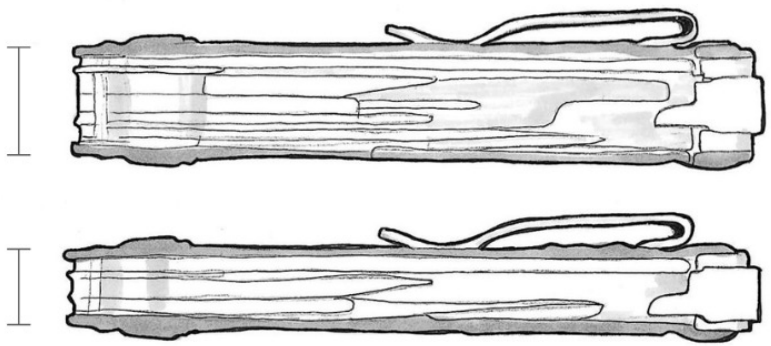
MODULAR TOOL DESIGN ILLUSTRATION

THE FRAME OF THE BODY COULD COME IN SET SIZES FOR EASE OF MANUFACTURING SUCH AS A 8-TOOL, 14-TOOL, AND 20-TOOL OPTION

USERS COULD THEN SELECT WHICH TOOLS THEY WANT TO BE INCLUDED

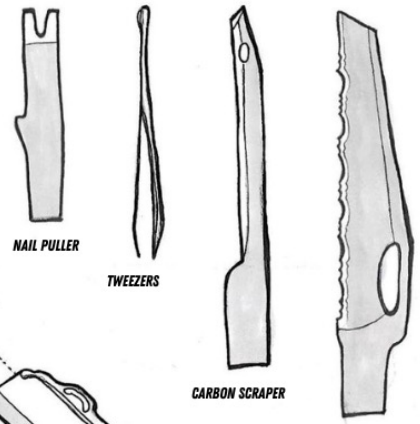


CURRENT TOOL OPTIONS THAT COME WITH THE LEATHERMAN ARC



ELIMINATING UNDESIRED TOOLS, ALSO REDUCES WEIGHT AND MATERIAL USAGE

ADDITIONAL TOOL OPTIONS FROM OTHER LEATHERMAN PRODUCTS



NAIL PULLER

TWEEZERS

CARBON SCRAPER

420HC SERRATED KNIFE

REMOVABLE TOOLS COULD TAKE INSPIRATION FROM THE EXCHANGEABLE SCREWDRIVER BITS

THIS FEATURE ALLOWS USERS TO SEND IN JUST ONE COMPONENT FOR REPAIR WITHOUT GIVING UP THEIR WHOLE MULTI-TOOL FOR THE DURATION OF THE REPAIR

#3 – MARKETING CAMPAIGN

SUGGESTIVE SUSTAINABILITY

LEATHERMAN

SUGGESTIVE SUSTAINABILITY

BY SUPPORTING AND CULTIVATING EXISTING SUSTAINABLE BEHAVIOR THAT THE TOOL POSSESS, THEY CAN AVOID ALIENATING PEOPLE THAT DO NOT AGREE WITH SUSTAINABLE GOALS. BY FOCUSING THE MESSAGING ON REPAIR, REUSE, AND DURABILITY, THE COMPANY CAN EMPBODY SUSTAINABILITY, WITHOUT SAYING IT.

EXAMPLES OF DISCRETE CERTIFICATION LOGOS USING NEUTRAL COLORS

EXAMPLE OF SUGGESTIVE ICONOGRAPHY IN SUBTLE CHANGES TO THEIR EXISTING LOGO, SYMBOLIZING CIRCULARITY

USING PHOTOGRAPHY THAT SUPPORTS SUSTAINABLE BEHAVIOR WITHOUT MAKING SUSTAINABILITY CLAIMS

#3 – MARKETING CAMPAIGN

FIX-IT WITH LEATHERMAN

LEATHERMAN

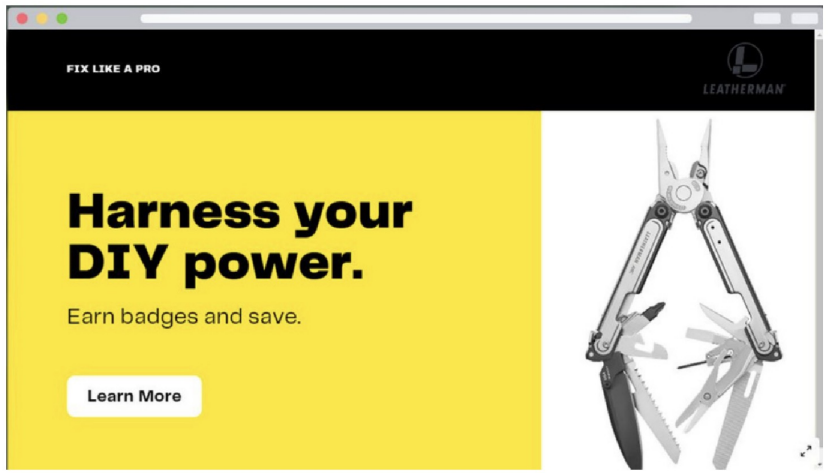
FIX-IT CAMPAIGN ONLINE FORUM

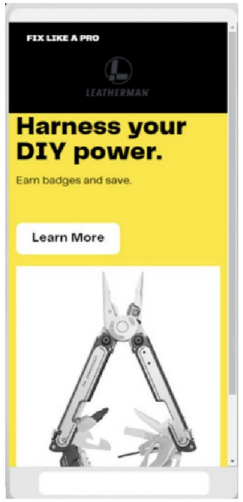
ONLINE PORTAL

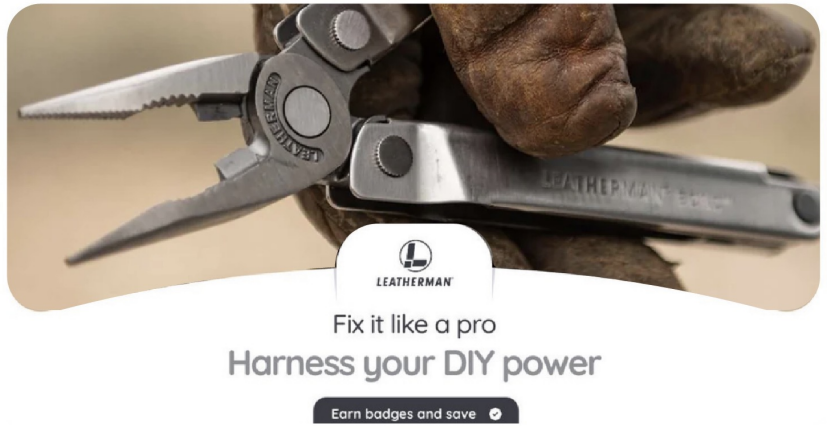
THE CORNERSTONE OF THIS CAMPAIGN IS THE "REPAIRED WITH LEATHERMAN" ONLINE PORTAL, WHICH EMPOWERS USERS TO DOCUMENT AND SHARE THEIR SUCCESSFUL REPAIRS OF HOUSEHOLD, WORK, AND OUTDOOR ITEMS USING LEATHERMAN TOOLS. BY ENCOURAGING FRIENDLY COMPETITION, POINT SYSTEMS, AND THE EXCHANGE OF TIPS AND ADVICE, THIS PLATFORM NOT ONLY REINFORCES THE UTILITY OF LEATHERMAN PRODUCTS BUT ALSO NURTURES A COMMUNITY OF LIKE-MINDED ENTHUSIASTS.

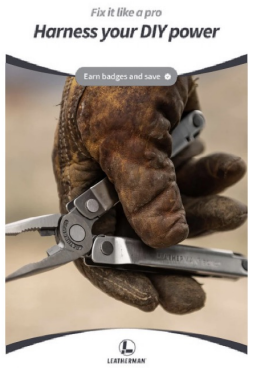
BLOG AND SOCIAL MEDIA CAMPAIGN

COMPLEMENTING THIS ONLINE PORTAL IS A DEDICATED BLOG AND SOCIAL MEDIA CAMPAIGN, ALLOWING THE "REPAIRED BY LEATHERMAN" NETWORK TO SHOWCASE THEIR SUCCESSFUL REPAIR PROJECTS. FURTHERMORE, THIS BLOG AND SOCIAL MEDIA POSTS SERVES AS AN EDUCATIONAL RESOURCE, TEACHING USERS HOW TO TACKLE VARIOUS REPAIR CHALLENGES USING THEIR LEATHERMAN TOOLS. IT POSITIONS LEATHERMAN AS MORE THAN JUST A BRAND BUT AS A VALUABLE PARTNER IN THEIR CUSTOMERS' DIY ENDEAVORS.









THIS CAMPAIGN SHOWCASES THE PERSUASIVE POWER OF MEDIA AND SOCIAL ACTORS, REINFORCING LEATHERMAN'S IMAGE AS A BRAND THAT NOT ONLY PROVIDES TOP-NOTCH TOOLS BUT ALSO PROMOTES A CULTURE OF SELF-SUFFICIENCY AND COMMUNITY INVOLVEMENT.

#3 – MARKETING CAMPAIGN

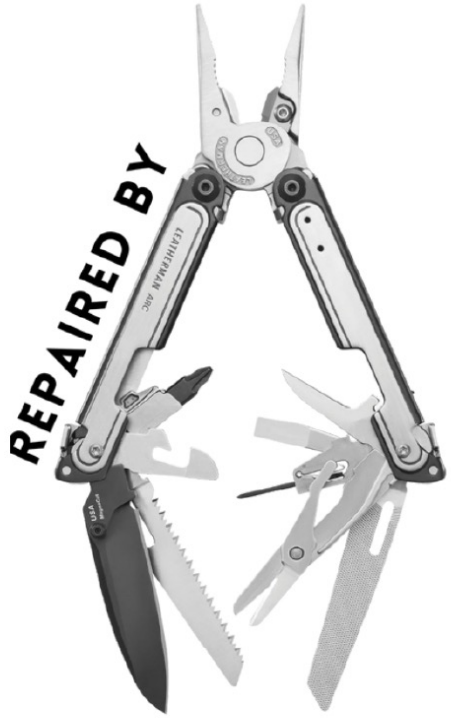
FIX-IT WITH LEATHERMAN

LEATHERMAN

FIX-IT CAMPAIGN

REPAIRED BY LEATHERMAN STICKERS!!!

TO SOLIDIFY THE EMOTIONAL CONNECTION BETWEEN USERS AND LEATHERMAN, THE CONCEPT INTRODUCES "REPAIRED BY LEATHERMAN" STICKERS, A TACTILE REPRESENTATION OF ACCOMPLISHMENT. THESE STICKERS, INCLUDED WITH THE MULTITOOL, CAN BE PROUDLY AFFIXED TO ITEMS THAT USERS HAVE SUCCESSFULLY REPAIRED WITH THEIR LEATHERMAN TOOL. THIS NOT ONLY SERVES AS A SUBTLE ENDORSEMENT OF THE BRAND BUT ALSO SPREADS THE MESSAGE OF SUSTAINABILITY AND SELF-RELIANCE IN AN ORGANIC AND PERSUASIVE MANNER.
*ALL STICKERS WOULD BE MADE OUT OF OCEAN PLASTIC.



#3 – MARKETING CAMPAIGN

WOMEN & GENDER INCLUSIVITY

LEATHERMAN

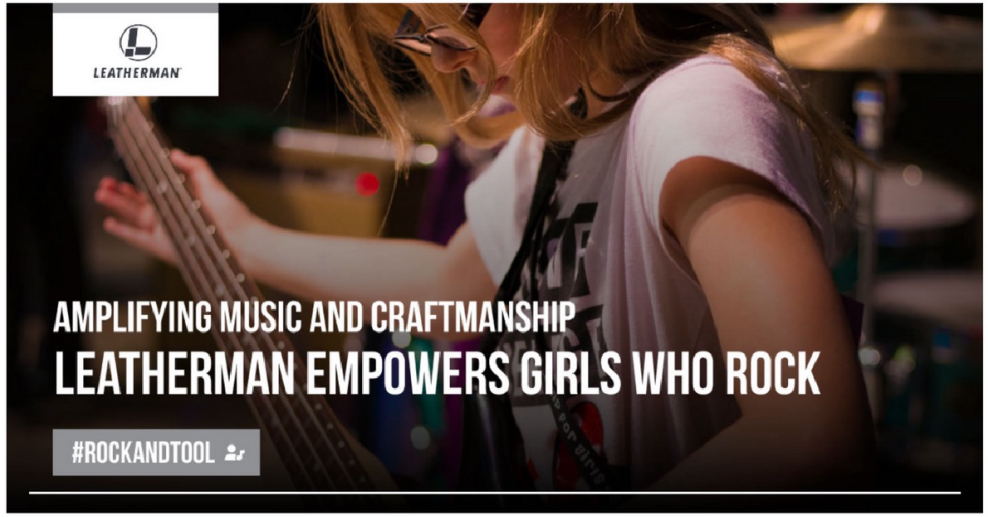
FIX-IT CAMPAIGN ONLINE FORUM

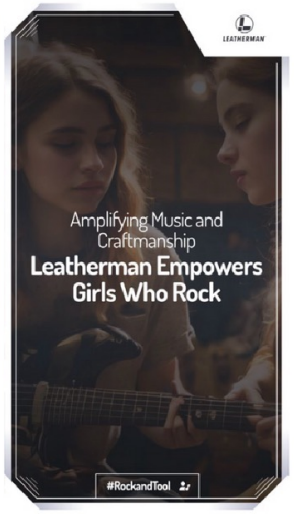
WOMEN AND GENDER INCLUSIVITY

JOIN THE REVOLUTION! LEATHERMAN MULTITOOL ISN'T JUST FOR THE OUTDOORSY GUYS; IT'S A VERSATILE COMPANION FOR THE BOLD AND BADASS GIRLS WHO ROCK. EMBRACE THE TRUE SPIRIT OF EMPOWERMENT.

KEY MESSAGING

- LEATHERMAN MULTITOOL IS A TOOL FOR EVERYONE, BREAKING STEREOTYPES AND EMPOWERING GIRLS WHO ROCK.
- MUSIC AND CRAFTSWOMANSHIP GO HAND IN HAND, AND LEATHERMAN IS THERE TO SUPPORT EVERY CHORD AND EVERY FIX.
- ENCOURAGE SELF-EXPRESSION, CREATIVITY, AND INDEPENDENCE THROUGH THE #ROCKANDTOOLCHALLENGE





Rock N' Roll Camp for Girls Los Angeles

Image Source:
h ps://werock.la/summer-camp/

ROCK 'n' ROLL CAMP FOR GIRLS PORTLAND, OR

Image Source:
h p s ://t w i er.com/RnRC4G

THANK YOU!

LEATHERMAN®