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AHP CALCULATION OF INDEPENDENT WEAVERS

Table A.1. Aggregate criteria data for pairwise comparison of independent weavers

Criteria	R	F	M	T	W	G
R	1.00	0.34	3.05	2.99	2.97	3.03
F	2.94	1.00	3.06	6.84	5.05	1.20
M	0.33	0.33	1.00	4.75	1.18	0.39
T	0.33	0.15	0.21	1.00	0.42	0.23
W	0.34	0.20	0.85	2.38	1.00	0.41
G	0.33	0.83	2.56	4.35	2.44	1.00

Table A.2. Aggregate pairwise comparison weights of criteria for independent weavers.

Criteria	R	F	M	T	W	G	Weight of criteria
R	0.19	0.12	0.28	0.13	0.23	0.48	0.24
F	0.56	0.35	0.29	0.31	0.39	0.19	0.34
M	0.06	0.11	0.09	0.21	0.09	0.06	0.10
T	0.06	0.05	0.02	0.04	0.03	0.04	0.04
W	0.06	0.07	0.08	0.11	0.08	0.07	0.07
G	0.06	0.29	0.24	0.19	0.19	0.16	0.18

$\lambda_{\max} = 6.50$, $CI = 0.10$, $CR = 0.07 < 0.10$ (Accepted)

Table A.3. Aggregate data of independent weavers for sub-criteria raw material

	R1	R2	R3
R1	1	3.67	1.24
R2	0.27	1	0.24
R3	0.81	4.17	1

Table A.4. Aggregate pairwise comparison weights for sub-criteria raw material

	R1	R2	R3	Weights of sub-criteria
R1	0.48	0.42	0.50	0.46
R2	0.13	0.11	0.10	0.11
R3	0.39	0.47	0.40	0.42

$\lambda_{\max}= 3.02, CI= 0.01, CR= 0.02<0.10$ (Accepted)

Table A.5. Aggregate data of independent weavers for sub-criteria Finance

	F1	F2	F3	F4	F5	F6
F1	1.00	1.29	0.34	3.00	0.21	0.21
F2	0.78	1.00	0.14	0.85	0.20	0.21
F3	2.94	7.00	1.00	4.65	1.19	1.22
F4	0.33	1.18	0.22	1.00	0.41	0.22
F5	4.76	5.00	0.84	2.44	1.00	1.35
F6	4.76	4.76	0.82	4.55	0.74	1.00

Table A.6. Aggregate pairwise comparison weights for sub-criteria Finance

	F1	F2	F3	F4	F5	F6	Weights of sub-criteria
F1	0.07	0.06	0.10	0.18	0.06	0.05	0.09
F2	0.05	0.05	0.04	0.05	0.05	0.05	0.05
F3	0.20	0.35	0.30	0.28	0.32	0.29	0.29
F4	0.02	0.06	0.06	0.06	0.11	0.05	0.06
F5	0.33	0.25	0.25	0.15	0.27	0.32	0.26
F6	0.33	0.24	0.24	0.28	0.20	0.24	0.25

$\lambda_{\max}= 6.30, CI= 0.06, CR= 0.05<0.10$ (Accepted)

Table A.7. Aggregate data of independent weavers for sub-criteria Marketing and outreach

	M1	M2	M3	M4	M5
M1	1.00	1.92	2.16	4.83	4.02
M2	0.52	1.00	3.88	1.81	5.13
M3	0.46	0.26	1.00	2.13	3.91
M4	0.21	0.55	0.47	1.00	3.54
M5	0.25	0.19	0.26	0.28	1.00

Table A.8. Aggregate pairwise comparison weights for sub-criteria Marketing and outreach

	M1	M2	M3	M4	M5	Weights of sub-criteria
M1	1.00	1.92	2.16	4.83	4.02	0.38
M2	0.52	1.00	3.88	1.81	5.13	0.29
M3	0.46	0.26	1.00	2.13	3.91	0.16
M4	0.21	0.55	0.47	1.00	3.54	0.12
M5	0.25	0.19	0.26	0.28	1.00	0.05

$\lambda_{\max}= 5.45, CI= 0.11, CR= 0.09<0.10$ (Accepted)

Table A.9. Aggregate data of independent weavers for sub-criteria Technology (T)

	T1	T2	T3
T1	1	3.34	0.43
T2	0.30	1	0.23
T3	2.33	4.35	1

Table A.10. Aggregate pairwise comparison weights for sub-criteria Technology (T)

	T1	T2	T3	Weights of sub-criteria
T1	0.28	0.38	0.26	0.31
T2	0.08	0.12	0.14	0.11
T3	0.64	0.50	0.60	0.58

$\lambda_{\max}= 3.05, CI= 0.02, CR= 0.04<0.10$ (Accepted)

Table A.11. Aggregate data of independent weavers for sub-criteria Workers-Related

	W1	W2	W3	W4	W5
W1	1.00	3.15	3.12	2.10	3.06
W2	0.32	1.00	3.16	0.33	1.24
W3	0.32	0.32	1.00	0.41	0.31
W4	0.48	3.00	2.44	1.00	1.82
W5	0.33	0.81	3.23	0.55	1.00

Table A.12. Aggregate pairwise comparison weights for sub-criteria Workers-Related

	W1	W2	W3	W4	W5	Weights of sub-criteria
W1	0.41	0.38	0.24	0.48	0.41	0.38
W2	0.13	0.12	0.24	0.08	0.17	0.15
W3	0.13	0.04	0.08	0.09	0.04	0.08
W4	0.20	0.36	0.19	0.23	0.24	0.24
W5	0.13	0.10	0.25	0.13	0.13	0.15

$\lambda_{\max}= 5.32, CI= 0.08, CR= 0.06<0.10$ (Accepted)

Table A.13. Aggregate data of independent weavers for sub-criteria Government

	G1	G2	G3
G1	1	0.41	0.32
G2	2.44	1	1.32
G3	3.125	0.76	1

Table A.14. Aggregate pairwise comparison weights for sub-criteria Government

	G1	G2	G3	Weights of sub-criteria
G1	0.15	0.19	0.12	0.15
G2	0.37	0.46	0.50	0.45
G3	0.48	0.35	0.38	0.40

$\lambda_{\max}= 3.05, CI= 0.02, CR= 0.04<0.10$ (Accepted)

Table A.15 Calculation of Priority ranking and weight of attributes of independent weavers

Criteria	Criteria weight	Sub criteria	Sub criteria weight	Over all weight
R	0.24	R1	0.47	0.112
		R2	0.11	0.027
		R3	0.42	0.101
F	0.35	F1	0.09	0.030
		F2	0.05	0.017
		F3	0.29	0.101
		F4	0.06	0.021
		F5	0.26	0.091
		F6	0.25	0.088
M	0.11	M1	0.38	0.041
		M2	0.29	0.032
		M3	0.16	0.018
		M4	0.12	0.013
		M5	0.05	0.006
T	0.04	T1	0.31	0.012
		T2	0.11	0.004
		T3	0.58	0.023
W	0.08	W1	0.38	0.031
		W2	0.15	0.012
		W3	0.08	0.006
		W4	0.24	0.019
		W5	0.15	0.012
G	0.19	G1	0.15	0.029
		G2	0.44	0.084
		G3	0.40	0.076

AHP CALCULATION OF MASTER WEAVERS

Table B.1. Aggregate criteria data for pairwise comparison of Master weavers

Criteria	R	F	M	T	W	G
R	1.00	0.42	0.53	3.64	0.42	1.13
F	2.38	1.00	1.02	2.81	0.90	1.83
M	1.89	0.98	1.00	4.87	2.78	2.68
T	0.27	0.36	0.21	1.00	0.24	0.41
W	2.38	1.11	0.36	4.17	1.00	3.44
G	0.88	0.55	0.37	2.44	0.29	1.00

Table B.2. Aggregate pairwise comparison weights of criteria for Master weavers.

Criteria	R	F	M	T	W	G	Weight of criteria
R	0.11	0.10	0.15	0.19	0.07	0.11	0.12
F	0.27	0.23	0.29	0.15	0.16	0.17	0.21
M	0.21	0.22	0.29	0.26	0.49	0.26	0.29
T	0.03	0.08	0.06	0.05	0.04	0.04	0.05
W	0.27	0.25	0.10	0.22	0.18	0.33	0.23
G	0.10	0.12	0.11	0.13	0.05	0.10	0.10

$\lambda_{\max} = 6.31$, $CI = 0.06$, $CR = 0.05 < 0.10$ (Accepted)

Table B.3. Aggregate data of Master weavers for sub-criteria raw material

	R1	R2	R3
R1	1.00	0.55	0.34
R2	1.82	1.00	0.87
R3	2.94	1.15	1.00

Table B.4. Aggregate pairwise comparison weights for sub-criteria raw material

	R1	R2	R3	Weights of sub-criteria
R1	0.17	0.20	0.15	0.18
R2	0.32	0.37	0.39	0.36
R3	0.51	0.43	0.45	0.46

$\lambda_{\max} = 3.01$, $CI = 0.007$, $CR = 0.01 < 0.10$ (Accepted)

Table B.5. Aggregate data of Master weavers for sub-criteria Finance

	F1	F2	F3	F4	F5	F6
F1	1.00	0.86	0.61	0.57	0.16	0.15
F2	1.16	1.00	0.46	1.56	0.24	0.19
F3	1.64	2.17	1.00	3.17	1.98	0.40
F4	1.75	0.64	0.32	1.00	0.16	0.20
F5	6.25	4.17	0.51	6.25	1.00	0.37
F6	6.67	5.26	2.50	5.00	2.70	1.00

Table B.6. Aggregate pairwise comparison weights for sub-criteria Finance

	F1	F2	F3	F4	F5	F6	Weights of sub-criteria
F1	0.05	0.06	0.11	0.03	0.03	0.06	0.06
F2	0.06	0.07	0.09	0.09	0.04	0.08	0.07
F3	0.09	0.15	0.19	0.18	0.32	0.17	0.18
F4	0.09	0.05	0.06	0.06	0.03	0.09	0.06
F5	0.34	0.30	0.09	0.36	0.16	0.16	0.23
F6	0.36	0.37	0.46	0.28	0.43	0.43	0.39

$\lambda_{\max}= 6.52, I= 0.10, CR= 0.08 < 0.10$ (Accepted)

Table B.7. Aggregate data of Master weavers for sub-criteria Marketing and outreach

	M1	M2	M3	M4	M5
M1	1.00	1.90	0.98	3.19	3.89
M2	0.53	1.00	0.84	3.25	5.19
M3	1.02	1.19	1.00	1.19	4.87
M4	0.31	0.31	0.84	1.00	3.67
M5	0.26	0.19	0.21	0.27	1.00

Table B.8. Aggregate pairwise comparison weights for sub-criteria Marketing and outreach

	M1	M2	M3	M4	M5	Weights of sub-criteria
M1	0.32	0.41	0.25	0.36	0.21	0.31
M2	0.17	0.22	0.22	0.37	0.28	0.25
M3	0.33	0.26	0.26	0.13	0.26	0.25
M4	0.10	0.07	0.22	0.11	0.20	0.14
M5	0.08	0.04	0.05	0.03	0.05	0.05

$\lambda_{\max}= 5.29, CI= 0.07, CR= 0.06 < 0.10$ (Accepted)

Table B. 9. Aggregate data of Master weavers for sub-criteria Technology (T)

	T1	T2	T3
T1	1.00	0.40	0.38
T2	2.50	1.00	0.42
T3	2.63	2.38	1.00

Table B.10. Aggregate pairwise comparison weights for sub-criteria Technology (T)

	T1	T2	T3	Weights of sub-criteria
T1	0.16	0.11	0.21	0.16
T2	0.41	0.26	0.23	0.30
T3	0.43	0.63	0.56	0.54

$\lambda_{\max}= 3.09$, $CI= 0.04$, $CR= 0.08 < 0.10$ (Accepted)

Table B.11. Aggregate data of Master weavers for sub-criteria Workers-Related

	W1	W2	W3	W4	W5
W1	1.00	0.98	4.19	0.87	0.72
W2	1.02	1.00	3.19	0.39	1.26
W3	0.24	0.31	1.00	0.42	0.49
M4	1.15	2.56	2.38	1.00	3.16
M5	1.39	0.79	2.04	0.32	1.00

Table B.12. Aggregate pairwise comparison weights for sub-criteria Workers-Related

	W1	W2	W3	W4	W5	Weights of sub-criteria
W1	0.21	0.17	0.33	0.29	0.11	0.22
W2	0.21	0.18	0.25	0.13	0.19	0.19
W3	0.05	0.06	0.08	0.14	0.07	0.08
W4	0.24	0.45	0.19	0.33	0.48	0.34
W5	0.29	0.14	0.16	0.11	0.15	0.17

$\lambda_{\max}= 5.30$, $CI= 0.07$, $CR= 0.07 < 0.10$ (Accepted)

Table B.13. Aggregate data of Master weavers for sub-criteria Government

	G1	G2	G3
G1	1.00	0.78	0.84
G2	1.28	1.00	0.98
G3	1.19	1.02	1.00

Table B.14. Aggregate pairwise comparison weights for sub-criteria Government

	G1	G2	G3	Weights of sub-criteria
G1	0.29	0.28	0.30	0.29
G2	0.37	0.36	0.35	0.36
G3	0.34	0.36	0.35	0.35
$\lambda_{\max}= 3.00, CI= 0.00, CR= 0.00<0.10$ (Accepted)				

Table B.15. Calculation of Priority ranking and weight of attributes of Master weavers

Criteria	Criteria weight	Sub criteria	Sub criteria weight	Over all weight
R	0.12	R1	0.18	0.021
		R2	0.36	0.043
		R3	0.46	0.056
F	0.21	F1	0.06	0.012
		F2	0.07	0.015
		F3	0.18	0.038
		F4	0.06	0.013
		F5	0.23	0.049
		F6	0.25	0.082
M	0.29	M1	0.31	0.090
		M2	0.25	0.072
		M3	0.25	0.072
		M4	0.14	0.040
		M5	0.05	0.015
T	0.05	T1	0.16	0.008
		T2	0.30	0.015
		T3	0.54	0.027
W	0.23	W1	0.22	0.051
		W2	0.19	0.044
		W3	0.08	0.018
		W4	0.34	0.078
		W5	0.17	0.039
G	0.10	G1	0.29	0.029
		G2	0.36	0.036
		G3	0.35	0.035

APPENDIX C

AHP CALCULATION OF COOPERATIVE SOCIETY WEAVERS

Table C.1. Aggregate criteria data for pairwise comparison of Cooperative society weavers

Criteria	R	F	M	T	W	G
R	1.00	0.43	1.25	1.79	0.72	1.25
F	2.33	1.00	0.88	1.97	0.88	1.84
M	0.80	1.14	1.00	4.18	0.77	2.90
T	0.56	0.51	0.24	1.00	0.68	0.35
W	1.39	1.14	1.30	1.47	1.00	4.54
G	0.80	0.54	0.34	2.86	0.22	1.00

Table C.2. Aggregate pairwise comparison weights of criteria for Cooperative society weavers.

Criteria	R	F	M	T	W	G	Weight of criteria
R	0.15	0.09	0.25	0.13	0.17	0.11	0.15
F	0.34	0.21	0.18	0.15	0.21	0.15	0.21
M	0.12	0.24	0.20	0.32	0.18	0.24	0.22
T	0.08	0.11	0.05	0.08	0.16	0.03	0.08
W	0.20	0.24	0.26	0.11	0.23	0.38	0.24
G	0.12	0.11	0.07	0.22	0.05	0.08	0.11

$\lambda_{\max} = 6.49$, $CI = 0.10$, $CR = 0.07 < 0.10$ (Accepted)

Table C.3. Aggregate data of Cooperative society weavers for sub-criteria raw material

	R1	R2	R3
R1	1.00	4.18	3.54
R2	0.24	1.00	0.46
R3	0.28	2.17	1.00

Table C.4. Aggregate pairwise comparison weights for sub-criteria raw material

	R1	R2	R3	Weights of sub-criteria
R1	0.66	0.57	0.71	0.64
R2	0.16	0.14	0.09	0.13
R3	0.19	0.30	0.20	0.23

$\lambda_{\max} = 3.06$, $CI = 0.03$, $CR = 0.06 < 0.10$ (Accepted)

Table C.5. Aggregate data of Cooperative society weavers for sub-criteria Finance

	F1	F2	F3	F4	F5	F6
F1	1.00	1.25	0.24	0.85	0.23	0.19
F2	0.80	1.00	0.18	1.29	0.24	0.27
F3	4.17	5.56	1.00	4.37	1.34	1.43
F4	1.18	0.78	0.23	1.00	0.46	0.52
F5	4.35	4.17	0.75	2.17	1.00	1.93
F6	5.26	3.70	0.70	1.92	0.52	1.00

Table C.6. Aggregate pairwise comparison weights for sub-criteria Finance

	F1	F2	F3	F4	F5	F6	Weights of sub-criteria
F1	0.06	0.08	0.08	0.07	0.06	0.04	0.06
F2	0.05	0.06	0.06	0.11	0.06	0.05	0.07
F3	0.25	0.34	0.32	0.38	0.35	0.27	0.32
F4	0.07	0.05	0.07	0.09	0.12	0.10	0.08
F5	0.26	0.25	0.24	0.19	0.26	0.36	0.26
F6	0.31	0.23	0.23	0.17	0.14	0.19	0.21

$\lambda_{\max}= 6.19, I= 0.04, CR= 0.03 < 0.10$ (Accepted)

Table C.7. Aggregate data of Cooperative society weavers for sub-criteria Marketing and outreach

	M1	M2	M3	M4	M5
M1	1.00	1.21	4.71	4.50	4.24
M2	0.83	1.00	3.28	4.11	5.97
M3	0.21	0.30	1.00	1.29	3.76
M4	0.22	0.24	0.78	1.00	3.59
M5	0.24	0.17	0.27	0.28	1.00

Table C.8. Aggregate pairwise comparison weights for sub-criteria Marketing and outreach

	M1	M2	M3	M4	M5	Weights of sub-criteria
M1	0.40	0.41	0.47	0.40	0.23	0.38
M2	0.33	0.34	0.33	0.37	0.32	0.34
M3	0.09	0.10	0.10	0.12	0.20	0.12
M4	0.09	0.08	0.08	0.09	0.19	0.11
M5	0.09	0.06	0.03	0.02	0.05	0.05

$\lambda_{\max}= 5.31, CI= 0.08, CR= 0.07 < 0.10$ (Accepted)

Table C.9. Aggregate data of Cooperative society weavers for sub-criteria Technology (T)

	T1	T2	T3
T1	1.00	2.55	1.38
T2	0.39	1.00	0.82
T3	0.72	1.22	1.00

Table C.10. Aggregate pairwise comparison weights for sub-criteria Technology (T)

	T1	T2	T3	Weights of sub-criteria
T1	0.47	0.53	0.43	0.48
T2	0.19	0.21	0.26	0.22
T3	0.34	0.26	0.31	0.30

$\lambda_{\max}= 3.02$, $CI= 0.01$, $CR= 0.02 < 0.10$ (Accepted)

Table C.11. Aggregate data of Cooperative society weavers for sub-criteria Workers-Related

	W1	W2	W3	W4	W5
W1	1.00	1.85	0.88	0.91	1.38
W2	0.54	1.00	1.38	0.80	0.94
W3	1.14	0.72	1.00	0.46	0.88
M4	1.10	1.25	2.17	1.00	2.10
M5	0.72	1.06	1.14	0.48	1.00

Table C.12. Aggregate pairwise comparison weights for sub-criteria Workers-Related

	W1	W2	W3	W4	W5	Weights of sub-criteria
W1	0.22	0.31	0.13	0.25	0.22	0.23
W2	0.12	0.17	0.21	0.22	0.15	0.17
W3	0.25	0.12	0.15	0.13	0.14	0.16
W4	0.24	0.21	0.33	0.27	0.33	0.28
W5	0.16	0.18	0.17	0.13	0.16	0.16

$\lambda_{\max}= 5.12$, $CI= 0.03$, $CR= 0.03 < 0.10$ (Accepted)

Table C.13. Aggregate data of Cooperative society weavers for sub-criteria Government

	G1	G2	G3
G1	1.00	0.52	0.39
G2	1.92	1.00	0.65
G3	2.56	1.54	1.00

Table C.14. Aggregate pairwise comparison weights for sub-criteria Government

	G1	G2	G3	Weights of sub-criteria
G1	0.18	0.17	0.19	0.18
G2	0.35	0.33	0.32	0.33
G3	0.47	0.50	0.49	0.49
$\lambda_{\max}= 3.00, CI= 0.00, CR= 0.00<0.10$ (Accepted)				

Table C.15. Calculation of Priority ranking and weight of attributes of Cooperatives society weavers

Criteria	Criteria weight	Sub criteria	Sub criteria weight	Over all weight
R	0.15	R1	0.64	0.096
		R2	0.13	0.019
		R3	0.23	0.034
F	0.21	F1	0.06	0.013
		F2	0.07	0.013
		F3	0.32	0.065
		F4	0.08	0.017
		F5	0.26	0.054
		F6	0.21	0.043
M	0.22	M1	0.38	0.083
		M2	0.34	0.073
		M3	0.12	0.026
		M4	0.11	0.023
		M5	0.05	0.011
T	0.08	T1	0.48	0.040
		T2	0.22	0.018
		T3	0.30	0.025
W	0.24	W1	0.23	0.054
		W2	0.17	0.041
		W3	0.16	0.038
		W4	0.28	0.066
		W5	0.16	0.038
G	0.11	G1	0.18	0.020
		G2	0.33	0.036
		G3	0.49	0.053

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LIST OF PUBLICATIONS

Journals:

1. Naik, M.K.P., Bhardwaj, P. & Mishra, V. (2023), Post-COVID assessment of small business weavers in an Indian handloom industry: identifying and prioritizing key challenges. *Research Journal of Textile and Apparel*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/RJTA-03-2023-0028>
2. Naik, M.K.P., Bhardwaj, P. & Mishra, V. (2023), Modeling of barrier in the adoption of omnichannel marketing: a case of Indian handloom industry. *Research Journal of Textile and Apparel*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/RJTA-11-2022-0139>
3. Naik, M.K.P & Bhardwaj, P. Barriers for adoption of augmented reality business model in the Indian handloom industry. *Operations Management Research*, 1-17. <https://doi.org/10.1007/s12063-024-00472-6>.
4. Naik, M.K.P & Bhardwaj, P. Understanding the requirements of customers and establishing strategies to fulfilling their requirements: a case of the Indian Handloom Industry. *Journal of Fashion Marketing and Management*, (Under review)
5. Naik, M.K.P & Bhardwaj, P. Facility network design by using k-mean and Elbow method: A case of Indian Handloom industry. *Facilities* (Under review)
6. Naik, M.K.P., Bhardwaj, P. (2023), Design of Ergonomic seat for the handloom weavers (Working paper)
7. Naik, M.K.P., Bhardwaj, P. (2023), Authentication of Handloom products by using logos and QR code (Working paper)

Conferences:

1. Naik, M.K.P & Bhardwaj, P (2018). Impact of working environment on the productivity of handloom weavers: A case of Varanasi. 16th international conference on Humanizing work and work environment, 56.
2. Naik, M.K.P & Bhardwaj, P (2018). A marketing model for silk sarees: A case of Varanasi. XXII Annual international conference of the society of operations management,82.
3. Naik, M.K.P & Bhardwaj, P (2019). Musculoskeletal disorders in handloom weavers: A case of Varanasi. 17th international conference on Humanizing work and work environment, 85.

ETHICAL COMMITTEE APPROVAL

BANARAS HINDU UNIVERSITY
INSTITUTE OF MEDICAL SCIENCES
VARANASI, INDIA -221 005

ECR/526/Inst/UP/2014/RR-20 dt. 19.5.2020

No. Dean/2022/EC/ 3354

Dated: 03.06.2022

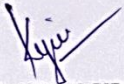
The Head
Department of Mechanical Engineering
(Industrial Management)
Indian Institute of Technology
Banaras Hindu University

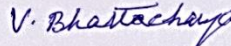
Dear Madam/Sir,

The Ethics Committee meeting was held on 03.06.2022 at 3.00 PM in the Chamber of the Dean, Faculty of Medicine, IMS for Ethical clearance of the MD/MS/DM/M.Ch/MBBS/Ph.D/PDCC/fellowship/synopsis/Short Project/Project submitted by the following:

Name of the Student	Meghavatu Krishna Prasanna Naik
Study Title	To study the workplace Ergonomic factors associated with weaver's productivity that affect the growth of the Handloom industry
Suggestions/Comments	-
Remarks	The Study is approved by the Institutional Ethics Committee

This is for your information and necessary action at your end.


(DR. KIRAN GIRI)
MEMBER SECRETARY

Yours sincerely,

(PROF. V. BHATTACHARYA)
CHAIRPERSON OF THE ETHICAL COMMITTEE

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Ref. No. ३१/९०/वि०/उ०/सि०/रवि०/रि० ५७-२०२१-२२

Date 20/07/2021

TO Whom It May Concern

This is to certify that, idea of weaving QR code and logos on saree, was given by Mr. M. Krishna Prasanna Naik, A Research scholar, who is working under the supervision of Prof. Prabhas Bhardwaj, Mechanical Engineering Department, IIT(BHU), VARANASI.

We are Implementing this Idea in our handloom products for the first time. One saree with QR code & logos has been weaved by us. Certainly, this idea is going to build a confidence in customers about the handloom products.

I wish success in the research work of M.Krishna Prasanna Naik

Angika Hathkargha Vikas
Udyog Sahkari Samiti Ltd


Chairman

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Ref. No. अं.ए. वि. उ. सह. सं. लि. 2021-2022 | 151

Date 03/01/2022

TO Whom It May Concern

This is to certify that, Mr. M. Krishna Prasanna Naik, a research scholar, is working under the supervision of Prof. Prabhas Bhardwaj, Mechanical Engineering Department, IIT (BHU), Varanasi. He has collected data in our cooperative society related to his Ph.D. research work from 15 June 2017 to 28 December 2021.

I wish success in the research work of M. Krishna Prasanna Naik.

Angika Hathkargha Vikas
Udyog Sahkari Samiti Ltd.


Chairman

RESEARCH IN PRESS AND MEDIA

➤ News about QR code and logo on Banaras saree

- <https://timesofindia.indiatimes.com/life-style/fashion/buzz/banarasi-sari-to-have-qr-code-woven-in/articleshow/84751490.cms?from=mdr>
- <https://www.bhaskar.com/local/uttar-pradesh/varanasi/news/mobile-will-be-able-to-know-about-the-original-banarasi-saree-new-technology-invented-at-iit-bhu-in-varanasi-128731305.html>
- <https://timesofindia.indiatimes.com/city/varanasi/weaved-qr-code-and-logo-will-tell-the-identity-of-genuine-handloom-banarasi-sarees/articleshow/84673922.cms>
- <https://zeenews.india.com/hindi/india/up-uttarakhand/varanasi/qr-code-and-logo-will-tell-about-original-handloom-banarasi-sarees-iit-bhu-did-a-research-know-the-details-uppm/948749>
- <https://www.amarujala.com/uttar-pradesh/varanasi/now-qr-code-and-logo-will-identity-real-and-fake-banarasi-sarees-technology-invented-by-iit-bhu-researchers>
- <https://www.pressreader.com/india/hindustan-times-west-up/20210725/281539408985603>
- <https://www.patrika.com/varanasi-news/original-banarasi-saree-will-identify-by-weaving-qr-code-and-logo-6972625/>
- <https://tv9bangla.com/lifestyle/fashion/your-banarasi-saree-to-now-come-with-a-woven-qr-code-389181.html>

➤ News about ergonomically designed seat

- <https://timesofindia.indiatimes.com/city/varanasi/weavers-to-fight-msd-with-ergonomically-designed-seat/articleshow/85116156.cms>
- <https://aajexpress.com/aajexpressdgtl-exclusive-iit-bhu-researchers-designed-ergonomic-chair-for-handloom-weavers-this-is-the-specialty-said-prof-prabhas-bhardwaj/>
- <https://eng.bharattimes.co.in/weavers-will-fight-msd-with-ergonomically-designed-seat-varanasi-news-times-of-india/>
- <https://www.yuvnews.com/57247/iit-bhu-designs-special-chair-for-weavers>
- <https://www.hindusthansamachar.in/Encyc/2021/8/6/An-ergonomic-chair-designed-for-handloom-weavers.php>